#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.07.96 Test oil : ISO 4113

: 0 460 484 105 Pump designation : VE4/8F2200R574-2

Customer-spec. information Customer : SEAT

: 1.9L SD Klima Mator

Power KW 47.0 :

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance °C +:

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar +: 0.05

Test nozzle holde

: 1 688 901 111 assembly

Opening pressure

Tolerance bar + :

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

# REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 0,9 **Outlet** 

# INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm Tolerance mm +: 0.2 Shutoff solenoid Volt 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Supply pomp

5.9 pressure bar Tolerance bar +-: 0.3

Shutoff solenoid

Volt 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250 Del. quantity

cm3/1000 strokes : 33.5 Tolerance

cm3/1000 str. + : 0.5Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

12 Volt

### HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 525

Del. quantity

cm3/1000 strokes : 7.0

Tolerance

cm3/1000 str. +: 1.0

Shutoff solenoid

Volt 12

#### IDLE DELIVERY

Rated speed rpm : 450

Del. quantity cm3/1000 strokes : 9.5

Tolerance

cm3/1000 str. +-: 1.0

Spread

cm3/1000 strokes : 2.0 Shutoff solenoid

Volt

12

+	Tolerance mm + : 0.4
HIGH IDLE SETTING	Shutoff solenoid Volt : 12
Rated speed rpm : 500	
Del. quantity cm3/1000 strokes : 9.5	Timing device solenoid Volt : 100
Tolerance cm3/1000 str. +-: 1.0	SUPPLY PUMP PRESSURE CHARACTERISTIC
Shutoff solenoid	Rated speed rpm : 2000
FULL-LOAD SPEED REGULATION +	Supply pomp pressure bar : 8.0
Rated speed rpm : 2525	Tolerance bar +-: 0.3 Shutoff solenoid
Del. quantity cm3/1000 strokes : 10.5	Volt : 12
Tolerance	Rated speed rpm : 750
cm3/1000 str. +-: 2.0 +- Shutoff solenoid +-	Supply pomp pressure bar : 4.3
Volt : 12	Tolerance bar +-: 0.3 Shutoff solenoid
STARTING FUEL DELIVERY	Volt : 12
Rated speed rpm : 100	OVERFLOW QUANTITY
Del. quantity cm3/1000 strokes : 53.0	Rated speed rpm : 2200
Tolerence cm3/1000 str. +: 13.0	Overflow quantity ccm/10s : 97.2
Shutoff solenoid Volt : 12	Tolerance ccm/10s + : 41.6
‡	Check tolerance
<u>†</u>	ccm/10s + : 41.6 Shutoff solenoid
	Volt : 12
INJECTION-PUMP TEST SPECIFICATIONS +	Rated speed rpm : 750
TIMING DEVICE CHARACTERISTIC	Overflow quantity ccm/10s : 63.8
Rated speed rpm : 2000	Tolerance
SV travel mm : 7.9	ccm/10s + : 22.2
Tolerance mm + : 0.4	Check tolerance
tolerance mm +: 0.7	Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12	
Rated speed rpm : 750	DELIVERY AND BREAKAWAY CHARACTERISTIC
SV travel mm : 3.5	Rated speed rpm : 2525 Del. quantity
Tolerance mm +: 0.4	cm3/1000 strokes : 10.5 Tolerance
tolerance mm +: 0.7 Shutoff solenoid	cm3/1000 str. + : 2.0 Check tolerance
Volt : 12	cm3/1000s. +: 4.0 Shutoff solenoid
Rated speed rpm : 2000	Volt : 12
SV travel mm : 1.3	Rated speed rpm : 2400

Del. quantity	1	Check tolerance
cm3/1000 strokes :	27.0	
	21.0	
Tolerance	-	Shutoff solenoid
cm3/1000 str. +-:	5.0	Volt : 12
Check tolerance	+	
cm3/1000s. +-:	6.0	
Shutoff solenoid	+	<del></del>
Volt :	12	ELECTR. SHUTOFF
	1	CONTROL LEVER, IDLE STOP
Rated speed rpm :	2675	CONTINUE ELECTIVY IDEE OF OF
Del. quantity	I	Rated speed rpm : 450
	1.5	
cm3/1000 strokes :	1.5	Del. quantity
Tolerance	1.5	cm3/1000 strokes : 1.5
cm3/1000 str. +-:	1.5	Tolerance
Check_tolerance	+	cm3/1000 str. +-: 1.5
cm3/1000s. +-:	1.5	Check tolerance
Shutoff solenoid	+	cm3/1000s. +-: 1.5
Volt :	12	Spread
	1	cm3/1000 strokes : 5.0
Rated speed rpm :	2200	
Del. quantity	1	FULL-LOAD STOP CONTROL LEVER
cm3/1000 strokes :	35.0	FOLL EOAD STOP CONTINUE ELVEN
	33.0	Detect energy was 150
Tolerance	1.0	Rated speed rpm : 450
cm3/1000 str. +-:	1.0	Del. quantity
Check tolerance	+	cm3/1000 strokes : 1.5
cm3/1000s. +-:	2.2	Tolerance
Shutoff solenoid	+	cm3/1000 str. + : 1.5
Volt :	12 +	Spread
	+	cm3/1000 strokes : 5.0
Rated speed rpm :	400	Check tolerance
Del. quantity	1	cm3/1000s. +-: 1.5
cm3/1000 strokes :	37.5	Spread
Tolerance	1.5	cm3/1000 strokes : 5.0
cm3/1000 str. +-:	3.0	chiar food strokes . J.O
	3.0	
Check tolerance	†	
cm3/1000s. + :	5.5	
Shutoff solenoid	+	
Valt :	12 +	
	+	
Rated speed rpm :	1250	
Del. quantity	1	
cm3/1000 strokes :	-3.3	
Shutoff solenoid	1	Rated speed rpm : 180
Volt :	12	Del. quantity
	1	cm3/1000 strokes : 57.0
Coted amond man	750 I	Tolerance
Rated speed rpm :	750	
Del. quantity	7/ 0	
cm3/1000 strokes :	34.0 +	Shutoff solenoid
Tolerence	†	Volt : 12
cm3/1000 str. +-:	1.5	
Check tolerance	+	
cm3/1000s. +-:	3.0 +	ASSEMBLY AND ADJUSTMENT DIMENSIONS
Shutoff solenoid	+	
Volt :	12	Dimension K mm : 3,3
•	1	Tolerance mm +: +0,1
Rated speed rpm :	1250	Dimension KF mm : 5,7
Del. quantity	1	Tolerance mm + : +-0,2
cm3/1000 strokes :	33.5	Dimension MS mm : 1,3
	7 T	Tolerance mm $+:+0,2$
Tolerance	0.5	TOTALINE IMI TOTAL
cm3/1000 str. +-:	0.5	

CONTROL LEVER POSITION SET

Control lever

position YA mm : 36,0..40,0

Control lever position YB mm : 47,7..57,3

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks
Refer to Service Info for test and adjustment instructions. See microcard(s) W400/
Edition : 27.06.96 Test oil : ISO 4113
Part no. : 0 460 424 132 Pump designation : VE4/12F1350R621-1
Customer-spec. information
Customer : IVECO-FIAT  Motor : 8040.45.5100 EU2

Power KW	:	85.0	
TEST BENCH REQUIRE	MEN	тѕ	
Calibrating-oil return temperature °C +-	:	55 1	
Overflow restriction mm	:	0.55	
Inlet press. bar Tolerance bar +		0.35 0.05	

Test nozzle assembly	holde	:	1	688	901	027

upenting pr	ressur	e.		
bar			:	250
Tolerance	bar	+-	:	3

Test lines	:	1	680	750	073
Outotala diametan			4 M	1	

<pre>x inside diameter : x length mm :</pre>	2. <b>00</b> 45 <b>0</b>
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REMARKS		

INJECTION PUMP SETTING VALUES

TIMING D	EVICE	TRAVEL
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Rated speed rpm Aneroid pressure	:	1000
hPa	:	1000
Setting mm Tolerance mm +- Shutoff solenoid	:	1.5 0.1
Volt	:	24
KSB/AFB Volt	:	24

# SUPPLY PUMP PRESSURE

Rated speed rpm	:	1000
Aneroid pressure hPa	:	1000
Supply pomp pressure bar Tolerance bar +-	:	6.9
Shutoff solenoid Volt	:	24
KSB/AFB Volt	:	24

# FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	72.0
Tolerance cm3/1000 str. +-	:	0.5
Spread cm3/1000 strokes	:	3.5
Check tolerance cm3/1000s.	•	5.0
Shutoff solenoid Volt		24
VOLE	•	24
KSB/AFB Volt	:	24

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm	:	500
Del. quantity cm3/1000 strokes	:	53.0
Tolerance cm3/1000 str. +-	:	0.5
Shutoff solenoid Volt	:	24
Check tolerance cm3/1000s.	:	5.0
KSB/AFB Volt	:	24

IDLE SETTING

Rated speed rpm	: 325	.1.			
Del. quantity		+	KSB/AFB Volt	: 24	
cm3/1000 strokes Tolerance	: 17.0	†	Setting point KSB		
cm3/1000 str. +-	: 2.0	Ī	Rated speed rpm Aneroid pressure	: 340	
Shutoff solenoid		+	hPa	: 1000	
Volt Spread	: 24	+	•		
cm3/1000 strokes	: 3.5	Ī	SV travel mm Tolerance mm +-	: 2.0	
Check tolerance	5.0	+	Check	. 0.5	
cm3/1000s.	: 5.0	†	tolerance mm +-	: 1.2	
KSB/AFB Volt	: 24	Ī	Shutoff solenoid Volt	: 24	
		+			
		İ	Rated speed rpm	: 450	
		. 1	Aneroid pressure	: 1000	
FULL-LOAD SPEED RE	EGULATION	+			
Rated speed rpm	: 1550	İ	SV travel mm	3.0	
Pressure hPa	: 1000	1	Tolerance mm + Check	: 0.6	
Del. quantity cm3/1000 strokes	: 15.0	+	tolerance mm +-	: 0.7	
Tolerance	. 15.0	1	Shutoff solenoid Volt	: 24	
cm3/1000 str. +-	: 3.0	+	VOCE	. 24	
Shutoff solenoid Volt	: 24	†	SUPPLY PUMP PRESS	JRE CHARACT	ERISTIC
VOCC	. 24	Ī	Rated speed rpm	: 1100	
KSB/AFB Volt	: 24	+	Aneroid pressure	. 1100	
STARTING FUEL DELI	VERY	İ	hPa Summission	: 1000	
		Į	Supply pomp pressure bar	: 7.5	
Rated speed rpm	: 100	+	Tolerance bar +-		
Del. quantity cm3/1000 strokes	: 73.0	İ	Shutoff solenoid Volt	. 2/	
Tolerance		+	VOCE	: 24	
cm3/1000 str. +- Shutoff solenoid	: 25.0	+	KSB/AFB Volt	: 24	
Volt	: 24	I	Rated speed rpm	: 700	
		+	Aneroid pressure	: 700	
KSB/AFB Volt	: 24	†	hPa	: 1000	
		Ī	Supply pomp pressure bar	: 5.2	
		+	Tolerance bar +-		
		İ	Shutoff solenoid Volt	. 3/	
INJECTION-PUMP TES	ST SPECIFICATION	s I	volt	: 24	
TIMING NEVICE CHAR	ACTEDICTIC	+	KSB/AFB Volt	: 24	
TIMING DEVICE CHAP	KMCIEKTOITC	Ī	Rated speed rpm	: 450	
Rated speed rpm	: 1100	+	Aneroid pressure	: 450	
Aneroid pressure	: 1000	†	hPa	: 1000	
HF <b>Q</b>	. 1000	I	Supply pomp pressure bar	: 7.0	
SV travel mm	: 2.7	+	Tolerance bar +-		
Tolerance mm +- Check	: 0.1	<b>†</b>	Shutoff solenoid		
tolerance mm +-	: 0.7	Ţ	Volt	: 24	
Shutoff solenoid	• 2/	+	OVERFLOW QUANTITY		
Volt	: 24	+			

Rated speed rpm Overflow quantity		‡	Aneroid pressure hPa :	1000
ccm/10s Tolerance	: 63.8	1	Del. quantity cm3/1000 strokes :	
ccm/10s +-	: 22.2	1	Tolerance	
Check tolerance		‡	cm3/1000 str. +-: Check tolerance	1.5
ccm/10s +- Shutoff solenoid	: 22.2	1	cm3/1000s. +-: Shutoff solenoid	1.5
Volt	: 24	1	Volt :	24
KSB/AFB Volt	: 24	Ŧ	KSB/AFB Volt :	24
Rated speed rpm Aneroid pressure	: 1350	1	Rated speed rpm : Aneroid pressure	600
hPa	: 1000	. ‡	hPa :	350
Overflow quantity ccm/10s	: 97.2	‡	Del. quantity cm3/1000 strokes :	69.5
Tolerance +-	: 41.6	‡	Tolerance cm3/1000 str. +-:	0.5
Check tolerance		İ	Check tolerance cm3/1000s. +-:	4.0
ccm/10s +-	: 41.6	+	Shutoff solenoid	
Shutoff solenoid Volt	: 24	Ţ	Volt :	24
KSB/AFB Volt	: 24	‡	KSB/AFB Volt :	24
DELIVERY AND BREA	KAMAY CHADA	TEDISTIC T	Rated speed rpm : Aneroid pressure	1350
		T T	hPa :	1000
Rated speed rpm Aneroid pressure	: 1550	‡	Del. quantity cm3/1000 strokes :	69.5
hPa Del. quantity	: 1000	<u>†</u>	Tolerance cm3/1000 str. + :	2.0
cm3/1000 strokes	: 15.0	+	Check tolerance	
Tolerance cm3/1000 str. +-	: 3.0	Ŧ	cm $3/1000$ S. $+$ : Shutoff solenoid	
Check tolerance cm3/1000s. +-	: 6.0	‡	Volt :	24
Shutoff solenoid Volt	: 24	Ì	KSB/AFB Volt :	24
		+	Rated speed rpm :	500
KSB/AFB Volt	: 24	Ţ	Aneroid pressure hPa :	1000
Rated speed rpm Aneroid pressure	: 1475	‡	Del. quantity cm3/1000 strokes :	77.5
hPa Del. quantity	: 1000	‡	Tolerance cm3/1000 str. +-:	2.0
cm3/1000 strokes Tolerance	: 50.0	Ì	Check tolerance cm3/1000s. +-:	
cm3/1000 str. +	: 6.0	Ŧ	Shutoff solenoid	
Check tolerance cm3/1000s. +-	: 7.0	‡	Volt :	24
Shutoff solenoid Volt	: 24	‡	KSB/AFB Volt :	24
KSB/AFB Volt	: 24	+	Rated speed rpm : Aneroid pressure	700
		Ŧ	hPa :	1000
Rated speed rpm	: 1600	‡	Del. quantity cm3/1000 strokes :	72.0

Talananaa		1 Tolonouse
Tolerance	٥.	+ Tolerance
cm3/1000 str. +	: 0.5	+ cm3/1000 str. +-: 10.0
Check tolerance		+ Shutoff solenoid
cm3/1000s. +-		† Volt : 24
Shutoff solenoid		†
Valt	: 24	+ KSB/AFB Volt : 24
		+
		†
<del></del>		
ELECTR. SHUTOFF		† Del. quantity
CONTROL LEVER, ID	LE STOP	+ cm3/1000 strokes : 75.0
		† Tolerance
Rated speed rpm	: 350	+ cm3/1000 str. +→: 15.0
Del. quantity		+ Shutoff solenoid
cm3/1000 strokes	: 1.5	+ Volt : 24
Tolerance		. 🕇
cm3/1000 str. +	: 1.5	+ KSB/AFB Volt : 24
Check tolerance		†
cm3/1000s. +-	: 1.5	+
Spread		+ ASSEMBLY AND ADJUSTMENT DIMENSIONS
cm3/1000 strokes	: 5.0	†
		+ Dimension K mm : 3,6
FULL-LOAD STOP CO	NTROL LEVER	† Tolerance mm +-: +-0,1
		+ Dimension KF mm : 8,4
Rated speed rpm	: 350	+ Tolerance mm $+$ : $+$ 0,2
Del. quantity		MS1 dimension mm : 1,6
cm3/1000 strokes	: 1.5	+ Tolerance mm +-: $+0.15/-0.1$
Tolerance		+
cm3/100C str. +-	: 1.5	+
Spread		+
cm3/1000 strokes	: 5.0	+ CONTROL LEVER POSITION
Check tolerance		∔ SET
cm3/1000s. +-	: 1.5	<del>}</del>
Spread		<del> </del>
cm3/1000 strokes	: 5.0	Control lever
		position YA mm : 36,940,9
IDLE DELIVERY		+
		+ Control lever
Rated speed rpm	: 450	position YB mm : 38,944,1
Del. quantity		+
cm3/1000 strokes	: 1.5	+
Tolerance		+
cm3/1000 str. +-	: 1.5	+
Check tolerance		+ End of test-specification sheet
cm3/1000s. +-	: 1.5	+
Shutoff solenoid		+
Volt	: 24	+
		+
KSB/AFB Volt	: 24	+
		+
		+
		+
		+
		+
		+
START TRANSITION		+
		+
Rated speed rpm	: 250	+
Del. quantity		+
cm3/1000 strokes	: 50.0	+
	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1

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#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06,02,96 Test oil : ISO 4113

: 0 460 494 403 Part no. Pump designation : VE4/9F2150R637

Customer-spec. information

Customer : NISSAN-MISA

: GX-3 Motor

Power KW 53.0

#### TEST BENCH REQUIREMENTS

#### Calibrating-oil

return

temperature °C Tolerance \*C +-:

Overflow

restriction mm : 0.55

Inlet press. bar :
Tolerance bar +- : 0.35

Test nozzle holde

: 1 688 901 022 assembly

Opening pressure

bar Tolerance bar +-: 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00 450 x length mm

#### REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1200

Setting mm 3.2 Tolerance mm +-: 0.2 Shutoff solenoid Volt 12

SUPPLY PUMP PRESSURE

1200 Rated speed rpm : Supply pomp

pressure bar 5.9 Tolerance bar +-: 0.3 Shutoff solenoid

12 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150 Del. quantity

cm3/1900 strokes : Tolerance

cm3/1000 str. +-: 0.5 Spread

cm3/1000 strokes : 2.5 Shutoff solenoid

Volt 12

#### IDLE SETTING

Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 8.5 Tolerance cm3/1000 str. + : 2.0 Shutoff solenoid Volt 12 Spread cm3/1000 strokes : 2.5 Check tolerance

cm3/1000s. 3.0

#### FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500 Del. quantity

cm3/1000 strokes : 15.0

Tolerance

cm3/1000 str. + :3.0 Shutoff solenoid

12

Volt

# STARTING FUEL DELIVERY

100 Rated speed rpm :

Del. quantity	† Shutoff solenoid
cm3/1000 strokes : 60.0	+ Volt : 12
Tolerance cm3/1000 str. +-: 15.0	Poted aread pro . 400
Shutoff solenoid	+ Rated speed rpm : 600
Volt : 12	+ Overflow quantity + ccm/10s : 63.8
vo(t . 12	Tolerance . 63.8
	ccm/10s +: 22.2
	I com/108
	T Check tolerance
	- + ccm/10s + : 22.2
INJECTION-PUMP TEST SPECIFICATIONS	+ Shutoff solenoid
21102012011   0111   1201   01 2021   2011   2010	+ Volt : 12
TIMING DEVICE CHARACTERISTIC	1
	↓ DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 2150	
	+ Rated speed rpm : 2500
SV travel mm : 9.2	+ Del. quantity
Tolerance mm + : 0.4	+ cm3/1000 strokes : 15.0
Check	+ Tolerance
tolerance mm + : 0.7	+ cm3/1000 str. +-: 3.0
Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1000s. + : 4.5
, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+ Shutoff solenoid
Rated speed rpm : 900	+ Volt : 12
Mateu opecu i piii i 200	1
SV travel mm : 1.2	Rated speed rpm : 2350
Tolerance mm +-: 0.4	+ Del. quantity
Check	+ cm3/1000 strokes : 33.3
tolerance mm + : 0.7	+ Tolerance
Shutoff solenoid	+ cm3/1000 str. +-: 4.0
Volt : 12	+ Check tolerance
, i	- cm3/1000s. +-: 5.5
SUPPLY PUMP PRESSURE CHARACTERISTIC	Shutoff solenoid
OUT FEET TOTIFF TREBOOKE CHARACTERISTIC	+ Volt : 12
Rated speed rpm : 2150	1
Supply pomp	Rated speed rpm : 2700
pressure bar : 8.7	Del. quantity
Tolerance bar + : 0.3	- cm3/1000 strokes : 2.5
Shutoff solenoid	+ Tolerance
Volt : 12	- cm3/1000 str. + : 2.5
1 16	Check tolerance
Rated speed rpm : 900	+ cm3/1000s. + : 2.5
Supply pomp	+ Shutoff solenoid
pressure bar : 5.0	+ Volt : 12
Tolerance bar + : 0.3	1
Shutoff solenoid	Rated speed rpm : 900
Volt : 12	Del. quantity
1000	cm3/1000 strokes : 42.2
OVERFLOW QUANTITY	Tolerance
CAPILIFOM MOUNTILL	- cm3/1000 str. + : 1.5
Rated speed rpm : 2150	Check tolerance
Overflow quantity	- cm3/1000s. +-: 2.5
ccm/10s : 97.2	Shutoff solenoid
Tolerance : 97.2	T Volt : 12
ccm/10s + : 41.6	1
CUII/ 105 , 4(.0	Rated speed rpm : 1200
Check tolerance	+ Del. quantity
ccm/10s +-: 41.6	+ cm3/1000 strokes : 43.2
CUM/ 105 T=: 41.0	T (11107) 1000 311 0/cs : 43.2
	T

÷ 1	1
Tolerance	+ Spread
cm3/1000 str. + : 1.5	+ cm3/1000 strokes : 5.0
Check tolerance	+ Check tolerance
cm3/1000s. +-: 2.5	+ cm3/1000s. $+$ : 1.5
Shutoff solenoid	Spread
Volt : 12	+ cm3/1000 strokes : 5.0
, it	1 (11.57 1000 301 01.03 . 3.0
Rated speed rpm : 1800	This he theny
	† IDLE DELIVERY
Del. quantity	T
cm3/1000 strokes : 44.3	+ Rated speed rpm : 800
Tolerance	+ Del. quantity
cm3/1000 str. +-: 1.5	+ cm3/1000 strokes : 2.5
Check tolerance	+ Tolerance
cm3/1000s. +-: 2.5	+ cm3/1000 str. $+$ : 2.5
Shutoff solenoid	+ Check tolerance
Volt : 12	+  cm3/1000s. + : 2.5
1011	Shutoff solenoid
Rated speed rpm : 600	Volt : 12
	T voct : 12
Del. quantity	T Detail aread area - 500
cm3/1000 strokes : 41.0	Rated speed rpm : 500
Tolerance	+ Del. quantity
cm3/1000 str. + : 1.5	+ cm3/1000 strokes : 1.5
Check tolerance	† Tolerance
cm3/1000s. + : 2.5	+ cm3/1000 str. + : 1.5
Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1000s. $+-$ : 1.5
	+ Shutoff solenoid
Rated speed rpm : 2150	+ Volt : 12
Del. quantity	1
cm3/1000 strokes : 44.5	I
	T
Tolerance	†
cm3/1000 str. +-: 0.5	<b>†</b>
Check tolerance	<del>†</del>
cm3/1000s. + : 1.3	
Shutoff solenoid	+ EXHAUST-GAS RECIRCULATION
Volt : 12	+
	+ Del. quantity
	+ cm3/1000 strokes : 0.80
	- Tolerance
ELECTR. SHUTOFF	+ cm3/1000 str. $+$ : 0.02
CONTROL LEVER, IDLE STOP	+ Check tolerance
ANILIAR FEATIN TAFE ALAL	- cm3/1000s. +-: 0.10
Rated speed rpm : 375	I (1115/10000 0.10
nateu specu (piii : 3/3	I START TRANSITION
Del. quantity	T START TRAINITITIES
cm3/1000 strokes : 1.5	† 2244 August 1992 1992
Tolerance	+ Rated speed rpm : 400
cm3/1000 str. + : 1.5	+ Del. quantity
Check tolerance	+ cm3/1000 strokes : 45.0
cm3/1000s. +-: 1.5	+ Tolerance
Spread	+ cm3/1000 str. $+$ : 20.0
cm3/1000 strokes : 5.0	+ Shutoff solenoid
	+ Volt : 12
FULL-LOAD STOP CONTROL LEVER	1
LACE DAMA OLD ADMINDE PEACH	1
Rated speed rpm : 375	Rated speed rpm : 270
Del. quantity	Del. quantity
cm3/1000 strokes : 1.5	+ cm3/1000 strokes : 70.0
Tolerance	+ Tolerance
cm3/1000 str. +-: 1.5	+ cm3/1000 str. $+$ : 20.0
cm3/1000 str. +-: 7.5	

Shutoff solenoid

Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,2
Tolerance mm + : +0,2
KSB travel mm : 4,3
TLA travel mm : 6,5

POTENTIOMETER

SET

1. measurement

voltage Volt : 5,0

1. measurement

voltage Volt : 0,8

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 35,1..39,1

Control Lever

position YB mm : 56,9..68,1

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 17,07,96 Edition Test oil : ISO 4113

: 0 460 423 902 Part no. Pump designation: VE3/12F1125R532

Customer-spec. information Customer : MWM

Motor : TD 226-B3 Power KW 55.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature \*C Tolerance °C +-:

Overflow

0.75 restriction mm :

Inlet press. bar : 0.35 Tolerance bar + :

Test nozzle holde

: 1 688 901 110 assembly

Opening pressure

250 Tolerance bar + :

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,04 Outlet

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600

Setting mm 3.0 Tolerance mm +-: 0.2 Shutoff solenoid 12 Volt

SUPPLY PUMP PRESSURE

Rated speed rpm : 600 Supply pomp pressure bar 5.0 Tolerance bar + : 0.3 Shutoff solenoid Volt 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 91.0 Tolerance cm3/1000 str. + :0.5 Spread cm3/1000 strokes : Shutoff solenoid Volt 12

IDLE SETTING

Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 21.0 Tolerance cm3/1000 str. +-: 3.0 Shutoff solenoid Volt 12 Spread cm3/1000 strokes : 3.5 Check tolerance 6.5 cm3/1000s.

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1125

Del. quantity

cm3/1000 strokes : 63.5

Tolerance cm3/1000 str. +-: 3.0	+ Rated speed rpm : 1050 + Overflow quantity
Shutoff solenoid	+ ccm/10s : 152.7 + Tolerance
Volt : 12	ccm/10s +: 41.6
SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP	Check tolerance ccm/10s + : 41.6
Rated speed rpm : 100	+ Shutoff solenoid + Volt : 12
Del. quantity cm3/1000 strokes : 100.0 Tolerance	Rated speed rpm : 400 Overflow quantity
cm3/1000 str. +-: 1.0 Shutoff solenoid	ccm/10s : 111.1
Volt : 12	ccm/10s +: 22.2
	Check tolerance ccm/10s +-: 22.2 Shutoff solenoid
INJECTION-PUMP TEST SPECIFICATIONS	+ Volt : 12
TIMING DEVICE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 700	Rated speed rpm : 1125 Del. quantity
SV travel mm : 4.4 Tolerance mm +-: 0.4	cm3/1000 strokes : 63.5
Check tolerance mm +-: 0.8	- cm3/1000 str. + : 3.0 - Check tolerance
Shutoff solenoid	+ cm3/1000s. $+-$ ; 8.5
Volt : 12	+ Shutoff solenoid + Volt : 12
Rated speed rpm : 500	Rated speed rpm : 1200
SV travel mm : 1.3	Del. quantity
Tolerance mm +-: 0.4 Check	+ cm3/1000 strokes : 7.5 + Check tolerance
tolerance mm + : 0.8 Shutoff solenoid	+ cm3/1000s. + : 7.5 + Shutoff solenoid
Volt : 12	Volt : 12
SUPPLY PUMP PRESSURE CHARACTERISTIC	+ Rated speed rpm : 1250 + Del. quantity
Rated speed rpm : 1050	cm3/1000 strokes : 1.5
Supply pomp pressure bar : 8.0 Tolerance bar + : 0.3	+ cm3/1000 str. + : 1.5
Shutoff solenoid	+ Check tolerance + cm3/1000s. + : 1.5
Volt : 12	+ Shutoff solenoid + Volt : 12
Rated speed rpm : 400 Supply pomp	Rated speed rpm : 1150
pressure bar : 3.7 Tolerance bar +: 0.3	+ Del. quantity + cm3/1 <b>00</b> 0 strokes : 34.0
Shutoff solenoid Volt : 12	+ Tolerance + cm3/1000 str. +-: 15.0
OVERFLOW QUANTITY	+ Check tolerance + cm3/1000s. +-: 15.0

Shutoff solenoid	40	+
Volt :	12	ELECTR. SHUTOFF
Rated speed rpm : Del. quantity	1050	CONTROL LEVER, IDLE STOP
cm3/1000 strokes : Tolerance	84.0	Rated speed rpm : 375 Del. quantity
cm3/1000 str. +-: Check tolerance	1.5	cm3/1000 strokes : 1.5
cm3/1000s. +-: Shutoff solenoid	3.0	+ cm3/1000 str. +-: 1.5 + Check tolerance
Volt :	12	cm3/1000s. + : 1.5 Spread
Rated speed rpm : Del. quantity	600	cm3/1000 strokes : 5.0
cm3/1000 strokes : Tolerance	92.0	FULL-LOAD STOP CONTROL LEVER
cm3/1000 str. +-: Check tolerance	3.0	Rated speed rpm : 375 Del. quantity
cm3/1000s. + : Shutoff solenoid	5.5	cm3/1000 strokes : 1.5
Volt :	12	cm3/1000 str. +-: 1.5 Spread
Rated speed rpm : Del. quantity	400	cm3/1000 strokes : 5.0 Check tolerance
cm3/1000 strokes : Tolerance	87.5	cm3/1000s. +-: 1.5 Spread
cm3/1000 str. +-: Check tolerance	3.0	cm3/1000 strokes : 5.0
cm3/1000s. +-: Shutoff solenoid	4.0	IDLE DELIVERY
Volt :	12	Rated speed rpm : 450 Del. quantity
Rated speed rpm : Del. quantity	800	- cm3/1000 strokes : 1.5 Tolerance
cm3/1000 strokes : Tolerance	91.0	- cm3/1000 str. +-: 1.5 - Check tolerance
cm3/1000 str. +-: Check tolerance	0.5	- cm3/1000s. +-: 1.5 - Shutoff solenoid
cm3/1000s. + : Shutoff solenoid	2.5	+ Volt : 12
Volt :	12	‡
MECHANICAL SHUTOFF		<del></del> ‡
Rated speed rpm :	1050	START TRANSITION
Del. quantity cm3/1000 strokes :	1.5	Rated speed rpm : 250
Tolerance cm3/1000 str. + :	1.5	Del. quantity cm3/1000 strokes : 90.0
Spread cm3/1000 strokes :	5.0	+ Tolerance + cm3/1000 str. +-: 20.0
Check tolerance cm3/100Gs. +-:	1.5	+ Shutoff solenoid + Volt : 12
Spread cm3/1000 strokes :	5.0	Dotted anged and a 190
Shutoff solenoid Volt :	12	Rated speed rpm : 180  Del. quantity
		+ cm3/1000 strokes : 130.0

Tolerance

cm3/1000 str. + : 20.0

Shutoff solenoid

Volt : 12

#### ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm + : +-0,1
Dimension KF mm : 6,4
Tolerance mm + : +-0,2

MS1 dimension mm : 1,1

Tolerance mm +-: +0,15/-0,1

# CONTROL LEVER POSITION

SET

Control lever

position YA mm : 41,4..45,4

Control lever

position YB mm : 37,5..43,5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 08.02.96 Edition : ISO 4113 Test oil

: 0 460 426 220 Part no. Pump designation: VE6/12F1150R534

Customer-spec. information : MWM Customer Motor : TD 226-B6 Power KW 92.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance °C +-:

Overflow

0.75 restriction mm :

Inlet press. bar : 0.35 Tolerance bar +: 0.05

Test nozzle holde

: 1 688 901 110 assembly

Opening pressure

Tolerance bar +-:

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 700

Setting mm 2.3 Tolerance mm +-: 0.2 Shutoff solenoid 12 Volt

SUPPLY PUMP PRESSURE

Rated speed rpm : 700

Supply pomp

5.9 pressure bar Tolerance bar + : 0.3 Shutoff solenoid

Volt

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

12

900 Rated speed rpm :

Del. quantity cm3/1000 strokes : 68.0

Tolerance

cm3/1000 str. +-:0.5 Spread

cm3/1000 strokes : 4.0 Shutoff solenoid

Volt 12

# IDLE SETTING

Rated speed rpm : 325 Del. quantity cm3/1000 strokes : 13.0 Tolerance cm3/1000 str. + :3.0 Shutoff solenoid

Volt 12 Spread

cm3/1000 strokes : 3.5 Check tolerance

cm3/1000s. 6.5

#### FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150

Del. quantity

cm3/1000 strokes : 61.0

Tolerance

cm3/1000 str. + : 0.5

Shutoff solenoid

Volt 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

,	
Pated aread pro . 100	Shutoff salenoid Volt : 12
Rated speed rpm : 100 + Del. quantity +	Volt : 12
cm3/1000 strokes : 90.0	Rated speed rpm : 500
Tolerance	Overflow quantity
cm3/1000 str. +: 1.0	ccm/10s : 125.0
Shutoff solenoid +	Tolerance
Volt : 12	ccm/10s +: 22.2
Ī	Check tolerance
I	ccm/10s +-: 22.2
	Shutoff solenoid
INJECTION—PUMP TEST SPECIFICATIONS +	Volt : 12
+	
TIMING DEVICE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 800	Rated speed rpm : 1150
nated speed (pill) : 555	Del. quantity
SV travel mm : 3.6	cm3/1000 strokes : 61.0
Tolerance mm +: 0.4	Tolerance
Check	cm3/1000 str. + : 0.5
tolerance mm +: 0.7	Check tolerance cm3/1000s. +: 3.0
Shutoff solenoid + Volt : 12 +	cm3/1000s.
. 12	Volt : 12
Rated speed rpm : 600	
+	Rated speed rpm : 1220
SV travel mm : 0.7	Del. quantity
Tolerance mm +-: 0.4 +- Check	cm3/1000 strokes : 7.5 Check tolerance
tolerance mm + : 0.7	cm3/1000s, +-: 7.5
Shutoff solenoid	Shutoff solenoid
Volt : 12	Volt : 12
+	
SUPPLY PUMP PRESSURE CHARACTERISTIC	Rated speed rpm : 1250
Rated speed rpm : 1050	Del. quantity cm3/1000 strokes : 1.5
Supply pomp	Tolerance
pressure bar : 7.8	cm3/1000 str. + : 1.5
Tolerance bar +: 0.3	Check tolerance
Shutoff solenoid +	cm3/1000s. +: 1.5
Volt : 12	Shutoff solenoid Volt : 12
Rated speed rpm : 500	Volt : 12
Supply pomp	Rated speed rpm : 1170
pressure bar : 4.3	Del. quantity
Tolerance bar +-: 0.3	cm3/1000 strokes : 40.0
Shutoff solenoid	Tolerance cm3/1000 str. +-: 15.0
Volt : 12	cm3/1000 str. +-: 15.0 Check tolerance
OVERFLOW QUANTITY	cm3/1000s. +-: 15.0
The state of the s	Shutoff solenoid
Rated speed rpm : 1050	Volt : 12
Overflow quantity	0-4-dd 4050
ccm/10s : 138.8 +	Rated speed rpm : 1050 Del. quantity
Tolerance + : 41.6	cm3/1000 strokes : 67.5
100,11,100	Tolerance
Check tolerance	cm3/1000 str. + : 1.5
ccm/10s +: 41.6 +	

Check tolerance	+ Tolerance
cm3/1000s. + : 3.0	+ cm3/1000 str. + : 1.5
Shutoff solenoid	- Check tolerance
Volt : 12	- cm3/1000s. +-: 1.5
vott . IE	
Dated award away a 400	+ Spread + cm3/1000 strokes : 5.0
Rated speed rpm : 600	+ cms/luu strokes : 5.0
Del. quantity	†
cm3/1000 strokes : 65.2	+ FULL-LOAD STOP CONTROL LEVER
Tolerance	+
cm3/1000 str. + : 3.0	+ Rated speed rpm : 350
Check tolerance	→ Del. quantity
cm3/1000s, +-: 4.0	+ cm3/1000 strokes : 1.5
Shutoff solenoid	+ Tolerance
Volt : 12	+ cm3/1000 str. +-: 1.5
, ,,,	Spread
Rated speed rpm : 500	cm3/1000 strokes : 5.0
Del. quantity	theck tolerance
cm3/1000 strokes : 60.0	+ cm3/1000s. +-: 1.5
Tolerance	+ Spread
cm3/1000 str. + : 3.0	+ cm3/1000 strokes : 5.0
Check tolerance	+
cm3/1000s. + : 4.0	+ IDLE DELIVERY
Shutoff solenoid	+
Volt : 12	+ Rated speed rpm : 375
	+ Del. quantity
Rated speed rpm : 900	+ cm3/1000 strokes : 1.5
Del. quantity	Tolerance
cm3/1000 strokes : 68.0	cm3/1000 str. +: 1.5
Tolerance	Check tolerance
	- cm3/1000s. + : 1.5
Check tolerance	+ Shutoff solenoid
cm3/1000s. +-: 2.5	+ Volt : 12
Shutoff solenoid	†
Volt : 12	+
	+
	+
MECHANICAL SHUTOFF	+
	+
Rated speed rpm : 1150	+ START TRANSITION
Del. quantity	1
cm3/1000 strokes : 1.5	Rated speed rpm : 250
Tolerance	+ Del. quantity
cm3/1000 str. +: 1.5	+ cm3/1000 strokes : 60.0
Spread	Tolerance
cm3/1000 strokes : 5.0	= cm3/1000 str. + : 15.0
Check tolerance	+ Shutoff solenoid + Volt : 12
cm3/1000s. + : 1.5	+ Volt : 12
Spread	†
cm3/1000 strokes : 5.0	† 1
Shutoff solenoid	+ Rated speed rpm : 160
Volt : 12	+ Del. quantity
	+ cm3/1000 strokes : 120.0
	+ Tolerance
ELECTR. SHUTOFF	+ cm3/1000 str. +-: 20.0
CONTROL LEVER, IDLE STOP	+ Shutoff solenoid
	+ Volt : 12
Rated speed rpm : 350	1
Del. quantity	1
cm3/1000 strokes : 1.5	ASSEMBLY AND ADJUSTMENT DIMENSIONS
CHID/ 1000 BCI ONES . 1.2	1 VOOPINET VIAN VANOOTTELL ATTICIOTORO

Dimension K mm : 3,6 Tolerance mm +-: +-0,1 Dimension KF mm : 6,4 Tolerance mm +:+0.2MS1 dimension mm : 1,1 Tolerance mm + : +0,15/-0,1

CONTROL LEVER POSITION SET

Control lever

: 41,4..45,4 position YA mm

Control Lever

: 40,6..46,4 position YB mm

		+	
OSCH INJ. PUMP TEST SPECIFICA	ATIONS .	+ Rated speed rpm	
ote remarks		+ Aneroid pressure + hPa	: 1200
efer to Service Info for tes	at and	+ Setting mm	: 1.6
djustment instructions.		+ Setting mm + Tolerance mm +-	: 0.1
e microcard(s) W400/		+ Shutoff solenoid	
		+ Volt	: 24
lition : 22.07.96		+	_
st oil : ISO 4113	•	+ SUPPLY PUMP PRESSI	JRE
ert no. : 0 460 424	. 097	Rated speed rpm	: 850
mp designation : VE4/12F13		+ Aneroid pressure	
		+ hPa	: 1200
		+ Supply pomp	
stomer-spec. information	,	pressure bar Tolerance bar +-	: 6.3
stomer : PERKINS otor : T4.40 110	keen or	+ Tolerance bar +-	: 0.3
tor : T4.40 110	IFI .	+ Shutoff solenoid	
	·	+ Volt	: 24
ST BENCH REQUIREMENTS		FULL-LOAD DELIVER	Y WITH BOOS
-12hion oil	,	T Bahad annud ann	. 4000
alibrating-oil	•	Rated speed rpm	: 1000
eturn emperature °C : 45	,	+ Aneroid pressure + hPa	: 1200
olerance °C +: 1	•	+ Del. quantity	. 1200
iceratice c + :		+ cm3/1000 strokes	: 75.5
verflow		+ Tolerance	. ,,,,
estriction mm : 0.55	•	+ cm3/1000 str. +	: 0.5
35 CT TO CTOTE (1881) . 0.22	•	+ Spread	. 0.5
	•	+ cm3/1000 strokes	: 4.0
nlet press. bar : 0.35		+ Check tolerance	
olerance bar +-: 0.05		+ cm3/1000s.	
		+ Shutoff solenoid	
		+ Volt	: 24
est nozzle holde		+	
ssembly : 1 688 901	027	+ FULL-LOAD DELIV.	WITHOUT BOO
		+	
pening pressure		+ Rated speed rpm	: 500
ar : 250		+ Del. quantity	
olerance bar + : 3		+ cm3/1000 strokes	: 61.5
		+ Tolerance	. 0.5
. 4 400 750	י חלק	+ cm3/1000 str. +-	: 0.5
est Lines : 1 680 750	1013	+ Shutoff solenoid + Volt	: 24
utside diameter : 6.00		+ VOLT + Check tolerance	. 64
itside diameter : 0.00		+ cm3/1000s.	: 4.0
inside diameter : 2.00		I (III) 10003.	. 4.0
length mm : 450		I IDLE SETTING	
Cengun inii . 450		TILL OCITING	
		Rated speed rpm	: 300
EMARKS		+ Del. quantity	
# # # # # # # # # # # # # # # # # # #		+ cm3/1000 strokes	: 10.0
		+ Tolerance	
		+ cm3/1000 str. +-	: 2.0
		+ Shutoff solenoid	
NECTION PUMP SETTING VALUES	)	+ Volt	: 24
		Spread	
IMING DEVICE TRAVEL		+ cm3/1000 strokes	: 5.0
		•	

Check tolerance	1
cm3/1000s. : 5.0	SV travel mm : 3.3
5.10. (1888)	+ Tolerance mm +: 0.3
	+ Check
	tolerance mm + : 0.7
	+ Shutoff solenoid
FULL-LOAD SPEED REGULATION	† Volt : 24
	†
Rated speed rpm : 1440	SUPPLY PUMP PRESSURE CHARACTERISTIC
Pressure hPa : 1200	4700
Del. quantity	+ Rated speed rpm : 1300
cm3/1000 strokes : 50.0 Tolerance	+ Aneroid pressure + hPa : 1200
cm3/1000 str. + : 2.0	+ Supply pomp
Shutoff solenoid	pressure bar : 8.2
Volt : 24	+ Tolerance bar +-: 0.3
	- Shutoff solenoid
STARTING FUEL DELIVERY	+ Volt : 24
	+
Rated speed rpm : 100	+ Rated speed rpm : 500
Del. quantity	+ Aneroid pressure
cm3/1000 strokes : 110.0	+ hPa : 1200
Tolerance	Supply pomp
cm3/1000 str. +-: 30.0 Shutoff solenoid	+ pressure bar : 4.8 + Tolerance bar + : 0.3
Volt : 24	Shutoff solenoid
VOCC . 24	Volt : 24
	1
	+ OVERFLOW QUANTITY
	1
	T
	Rated speed rpm : 1300
INJECTION-PUMP TEST SPECIFICATIONS	+ Aneroid pressure
	+ Aneroid pressure + hPa : 1200
INJECTION-PUMP TEST SPECIFICATIONS TIMING DEVICE CHARACTERISTIC	Aneroid pressure hPa : 1200 Overflow quantity
TIMING DEVICE CHARACTERISTIC	Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 97.2
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950	Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 97.2 Tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure	Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 97.2
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950	Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s + : 27.7
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm +-: 0.3	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s + : 27.7  Check tolerance  ccm/10s + : 27.7  Shutoff solenoid  Volt : 24
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700  Aneroid pressure
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700  Aneroid pressure hPa : 1200
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700 Aneroid pressure hPa : 1200 Overflow quantity
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700  Aneroid pressure hPa : 1200  Overflow quantity ccm/10s : 63.8
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700 Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 63.8  Tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700 Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 63.8  Tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s + : 27.7  Check tolerance  ccm/10s + : 27.7  Shutoff solenoid  Volt : 24  Rated speed rpm : 700  Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 63.8  Tolerance  ccm/10s + : 22.2  Check tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700  Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 63.8  Tolerance ccm/10s +: 22.2  Check tolerance ccm/10s +: 22.2
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s +: 27.7  Check tolerance  ccm/10s +: 27.7  Shutoff solenoid  Volt : 24  Rated speed rpm : 700  Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 63.8  Tolerance  ccm/10s +: 22.2  Check tolerance  ccm/10s +: 22.2  Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6 Shutoff solenoid	Aneroid pressure  hPa : 1200  Overflow quantity ccm/10s : 97.2  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700  Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 63.8  Tolerance ccm/10s +: 22.2  Check tolerance ccm/10s +: 22.2
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s +: 27.7  Check tolerance  ccm/10s +: 27.7  Shutoff solenoid  Volt : 24  Rated speed rpm : 700  Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 63.8  Tolerance  ccm/10s +: 22.2  Check tolerance  ccm/10s +: 22.2  Shutoff solenoid  Volt : 24
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6 Shutoff solenoid Volt : 24	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s +: 27.7  Check tolerance  ccm/10s +: 27.7  Shutoff solenoid  Volt : 24  Rated speed rpm : 700  Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 63.8  Tolerance  ccm/10s +: 22.2  Check tolerance  ccm/10s +: 22.2  Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6 Shutoff solenoid Volt : 24  Rated speed rpm : 0.6 Shutoff solenoid Volt : 24	Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 24  Rated speed rpm : 700 Aneroid pressure hPa : 1200 Overflow quantity ccm/10s : 63.8 Tolerance ccm/10s + : 22.2  Check tolerance ccm/10s + : 22.2  Check tolerance ccm/10s + : 22.2  Shutoff solenoid Volt : 24  DELIVERY AND BREAKAWAY CHARACTERISTIC
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 950 Aneroid pressure hPa : 1200  SV travel mm : 2.7 Tolerance mm + : 0.3 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 24  Rated speed rpm : 750 Aneroid pressure hPa : 1200  SV travel mm : 0.6 Tolerance mm + : 0.3 Check tolerance mm + : 0.6 Shutoff solenoid Volt : 24	Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 97.2  Tolerance  ccm/10s +: 27.7  Check tolerance  ccm/10s +: 27.7  Shutoff solenoid  Volt : 24  Rated speed rpm : 700  Aneroid pressure  hPa : 1200  Overflow quantity  ccm/10s : 63.8  Tolerance  ccm/10s +: 22.2  Check tolerance  ccm/10s +: 22.2  Shutoff solenoid  Volt : 24

Aneroid pressure hPa :	1200	+ Del. quantity + cm3/1000 strokes : 75.5
Del. quantity cm3/1000 strokes :	50.0	+ Tolerance + cm3/1000 str. +-: 1.5
Tolerance cm3/1000 str. +-:	2.0	Check tolerance + cm3/1000s. +-: 3.5
Check tolerance cm3/1000s. +:	6.0	+ Shutoff solenoid + Volt : 24
Shutoff solenoid Volt :	24	+ Rated speed rpm : 1000
Rated speed rpm :	1500	+ Aneroid pressure + hPa : 1200
Aneroid pressure hPa : Del. quantity	1200	+ Del. quantity + cm3/1000 strokes : 75.5 + Tolerance
cm3/1000 strokes : Check tolerance	30.0	cm3/1000 str. +: 0.5 Check tolerance
cm3/1000s. +-: Shutoff solenoid	10.0	+ cm3/1000s. +-: 3.0 + Shutoff solenoid
Volt :	24	+ Volt : 24
Rated speed rpm : Aneroid pressure	1580	MECHANICAL SHUTOFF
hPa : Del. quantity	1200	Rated speed rpm : 1300
cm3/1000 strokes : Tolerance cm3/1000 str. +-:	1.5 1.5	+ Aneroid pressure + hPa : 1200 + Del. quantity
Check tolerance cm3/1000s. +:	1.5	cm3/1000 strokes : 1.5
Shutoff solenoid Volt :	24	- cm3/1000 str. +-: 1.5 - Check tolerance
Rated speed rpm :	700	cm3/1000s. + : 1.5 Shutoff solenoid
Aneroid pressure hPa :	550	+ Volt : 24
Del. quantity cm3/1000 strokes :	71.5	ELECTR. SHUTOFF
Tolerance cm3/1000 str. +-: Check tolerance	0.5	CONTROL LEVER, IDLE STOP Rated speed rpm : 300
cm3/1000s. + : Shutoff solenoid	3.0	Del. quantity cm3/1000 strokes : 1.5
Volt :	24	Tolerance cm3/1000 str. +-: 1.5
Rated speed rpm : Aneroid pressure	1300	+ Check tolerance + cm3/1000s. +-: 1.5
hPa : Del. quantity	1200	FULL-LOAD STOP CONTROL LEVER
cm3/1000 strokes : Tolerance	78.0	Rated speed rpm : 300
cm3/1000 str. +: Check tolerance cm3/1000s. +:	1.5 3.5	<pre>- Del. quantity - cm3/1000 strokes : 1.5 - Tolerance</pre>
Shutoff solenoid Volt :	24	cm3/1000 str. +: 1.5
Rated speed rpm :	700	cm3/1000s. +-: 1.5
Aneroid pressure hPa :	1200	IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Shutoff solenoid

24

End of test-specification sheet

#### START TRANSITION

Volt

Rated speed rpm : 250 Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. +: 20.0 Shutoff solenoid Volt 24 150 Rated speed rpm Del. quantity cm3/1000 strokes : 120.0 Tolerance cm3/1000 str. + : 30.0 Shutoff solenoid Volt 24

#### ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : +0,1
Dimension KF mm : 6,4
Tolerance mm + : +0,2
MS1 dimension mm : 1,15
Tolerance mm + : +0,15/-0,1
KSB travel mm : 8,5

CONTROL LEVER POSITION SET

Control lever

position YA mm : 31,5..33,5

Control lever

position YB mm : 47,7..56,3

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.04.96 Test oil : ISO 4113

Part no. : 0 460 484 124 Pump designation : VE4/8F2300R598-8

Customer—spec. information Customer : RENAULT

Motor : F8Q - 620 DDS

Power KW : 45.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test nozzle holde

assembly : 1 688 901 022

Opening pressure

bar : 130 Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 450

# REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.7
Tolerance mm + : 0.2

Shutoff solenoid

Volt : 12

#### SUPPLY PUMP PRESSURE

Rated speed rpm : 1250 Supply pomp

pressure bar : 5.5 Tolerance bar + : 0.3

Shutoff solenoid

Volt : 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

2.5

Rated speed rpm : 1250 Del. quantity

cm3/1000 strokes : 31.5

Tolerance

cm3/1000 str. + : 0.5

Spread cm3/1000 strokes :

Shutoff solenoid

Volt : 12

# HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 3.0

Tolerance

cm3/1000 str. + : 2.0

Shutoff solenoid

Volt : 12

#### IDLE DELIVERY

Rated speed rpm : 410 Del. quantity

cm3/1000 strokes : 9.5

Tolerance

cm3/1000 str. +-: 2.0

Spread

cm3/1000 strokes : 2.5

Shutoff solenoid

Volt : 12

# HIGH IDLE SETTING

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 9.0

	•
Tolerance	†
cm3/1000 str. +-: 2.0 Shutoff solenoid	INJECTION—PUMP TEST SPECIFICATIONS
Volt : 12	+ TIMING DEVICE CHARACTERISTIC
FULL-LOAD SPEED REGULATION	Rated speed rpm : 2000
Rated speed rpm : 2450	+
Del. quantity cm3/1000 strokes : 24.5	- SV travel mm : 6.3 - Tolerance mm + : 0.4
Tolerance cm3/1000 str. +-: 3.0	+ Check + tolerance mm +-: 0.6
Shutoff solenoid	+ Shutoff solenoid
Volt : 12	+ Volt : 12
STARTING FUEL DELIVERY	Rated speed rpm : 600
Rated speed rpm : 100 Del. quantity	+ SV travel mm : 1.2 + Tolerance mm +-: 0.4
cm3/1000 strokes : 55.0	+ Check
Tolerance cm3/1000 str. +-: 15.0	tolerance mm + : 0.6 Shutoff solenoid
Shutoff solenoid	+ Volt : 12
Volt : 12	SUPPLY PUMP PRESSURE CHARACTERISTIC
	Rated speed rpm : 2000
LOAD-DEPENDENT START OF DELIVERY SETTING	+ Supply pomp + pressure bar : 7.7
	Tolerance bar +-: 0.3
DELIVERY DIFFERENCE	+ Shutoff solenoid + Volt : 12
Rated speed rpm : 1250 Del. quantity	+ Rated speed rpm : 600
cm3/1000 strokes : -7.0	+ Supply pomp
Tolerance cm3/1000 str. +-: 1.0	- pressure bar : 3.5 - Tolerance bar + : 0.3
Shutoff solenoid	- Shutoff solenoid
Volt : 12	+ Volt : 12
PRESSURE DIFFERENCE	OVERFLOW QUANTITY
Rated speed rpm : 1250 Del. quantity	Rated speed rpm : 2250 Overflow quantity
cm3/1000 strokes : -0.2	+ ccm/10s : 97.2
Tolerance cm3/1000 str. + : 0.1	+ Tolerance + ccm/10s + : 41.6
Shutoff solenoid Volt : 12	+ Check tolerance
TIMING-DEVICE TRAVEL DIFFERENCE	ccm/10s +: 41.6 Shutoff solenoid
	Volt : 12
Del. quantity	Rated speed rpm : 600
cm3/1000 strokes : -0.7 Tolerance	+ Overflow quantity + ccm/10s : 63.8
cm3/1000 str. + : 0.1 Shutoff solenoid	+ Tolerance + ccm/10s +-: 22.2
Volt : 12	30117103
	T

				Talamana	
Check tolerance			1	Tolerance cm3/1000 str. + : 1.0	
ccm/10s +		22.2	I	Check tolerance	
Shutoff solenoid	•		I	cm3/1000s. +-: 2.3	
Volt	:	12	1	Shutoff solenoid	
			1	Volt : 12	
DELIVERY AND BREAK	(AWA)	Y CHARACTERISTIC	+		
			+	Rated speed rpm : 600	
Rated speed rpm	:	2450	+	Del. quantity	
Del. quantity			+	cm3/1000 strokes : 31.9	
cm3/1000 strokes	:	24.5	+	Tolerance	
Tolerance		7.0	†	cm3/1000 str. +: 1.5	
cm3/1000 str. +	:	3.0	†	Check tolerance	
Check tolerance cm3/1000S. +		4.0	†	cm3/1000s. + : 2.3 Shutoff solenoid	
Shutoff solenoid	•	4.0	Ť	Volt : 12	
Volt		12	• 1	voct : 12	
VOLL	•	16	I	Rated speed rpm : 1250	
Rated speed rpm	•	2650	I	Del. quantity	
Del. quantity	•	2000	1	cm3/1000 strokes : 31.5	
cm3/1000 strokes	:	9.5	1	Tolerance	
Check tolerance	•		1	cm3/1000 str. + : 0.5	
cm3/1000s. +-	:	5.0	+	Check tolerance	
Shutoff solenoid			+	cm3/1000s. +-: 2.3	
Volt	:	12	+	Shutoff solenoid	
			+	Volt : 12	
Rated speed rpm	:	2950	+		
Del. quantity			†		
cm3/1000 strokes	:	2.5	†	FI FATE CHUTAFF	_
Tolerance		2 5	†	ELECTR. SHUTOFF	
cm3/1000 str. +	:	2.5	†	CONTROL LEVER, IDLE STOP	
Check tolerance cm3/1000S. +		2.5	Ť	Rated speed rpm : 410	
Shutoff solenoid	•	2.3	Ī	Rated speed rpm : 410 Del. quantity	
Volt	:	12	I	cm3/1000 strokes : 1.5	
VOCC	•	16	I	Tolerance	
Rated speed rpm	:	2250	1	cm3/1000 str. +: 1.5	
Del. quantity	•		+	Check tolerance	
cm3/1000 strokes	:	32.1	+	cm3/1000s. +-: 1.5	
Tolerance			+	Spread	
cm3/1000 str. +-	:	1.0	+	cm3/1900 strokes : 5.0	
Check tolerance			+		
cm3/1000s. +	:	2.3	†	FULL-LOAD STOP CONTROL LEVER	
Shutoff solenoid		43	+	Retad aread per	
Volt	:	12	†	Rated speed rpm : 410 Del. quantity	
Rated speed rpm	:	1625	Ī	cm3/1000 strokes : 1.5	
Del. quantity	•	1023	Ι	Tolerance	
cm3/1000 strokes	•	31.0	1	cm3/1000 str. + : 1.5	
Tolerance	•	51.0	1	Spread	
cm3/1000 str. +-	:	1.5	1	cm3/1000 strokes : 5.0	
Check tolerance	•	,	+	Check tolerance	
cm3/1000s. +-	:	2.3	+	cm3/1000s. +-: 1.5	
Shutoff solenoid			+	Spread	
Volt	:	12	+	cm3/1000 strokes : 5.0	
			+		
Rated speed rpm	:	2000	+		
Del. quantity		70 5	†		
cm3/1000 strokes	:	32.5	†		
			+		

# CHECKING LOAD-DEPENDENT START OF DELIVERY

# DELIVERY DIFFERENCE

Rated speed rpm Del. quantity	:	1250
cm3/1000 strokes	:	-9.5
Tolerance cm3/1000 str. +	:	3.0
Check tolerance cm3/1000s. +-	:	3.0
Shutoff solenoid Volt	:	12

# TIMING-DEVICE TRAVEL DIFFERENCE

	:	1250
Del. quantity cm3/1000 strokes	:	-0.7
Tolerance cm3/1000 str. +-	:	0.1
Check tolerance cm3/1000s. +-	:	0.1
Shutoff solenoid Volt	:	12

# DELIVERY DIFFERENCE

Rated speed rpm Del. quantity	:	1250
cm3/1000 strokes	:	5.0
Tolerance cm3/1000 str. +-	•	3.0
Check tolerance	•	
cm3/1000S. +- Shutoff solenoid	:	3.0
Volt		12

# TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm	:	1250
Tolerance mm +	:	0.2
Check		
tolerance mm +	:	0.3
Shutoff solenoid		
Volt	:	12

# START TRANSITION

Rated speed rpm	:	310
Del. quantity cm3/1000 strokes	:	35.0
Tolerance cm3/1000 str. +-	•	10.0
Shutoff solenoid	•	,
Volt	:	12

Rated speed rpm Del. quantity	:	210
cm3/1000 strokes	:	60.0
Tolerance cm3/1000 str. +-	:	15.0
Shutoff solenoid Volt	:	12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension	K mm	: 3,3
Tolerance	mm +	: +-0,1
Dimension	KF mm	: 5,4
Tolerance	mm +-	: +-0,2
Dimension	MS mm	: 1,3
Tolerance	mm +-	: +-0,2

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.07.96 Test oil : ISO 4113

Part no. : 0 460 484 099 Pump designation : VE4/8F2500R611-1

Customer-spec. information Customer : PSA Motor : TUD 5-L3 Power KW : 42.0

#### TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C : 45 Tolerance °C +-: 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test mozzle holde

assembly : 1 688 901 022

Opening pressure

bar : 130 Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

#### REMARKS

#### BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,8
Tolerance mm + : +-0,2
Outlet : A

#### INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 5.0
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

#### SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pomp
pressure bar : 6.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

# HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500

Del. quantity
cm3/1000 strokes : 2.0

Tolerance
cm3/1000 str. + : 0.5

Shutoff solenoid

Volt : 12

#### IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0

Shutoff solenoid Volt	: 12	SUPPLY PUMP PRESSURE CHARACTERISTIC
HIGH IDLE SETTING		Rated speed rpm : 2200 Supply pomp
Rated speed rpm	• 475	+ pressure bar : 8.1
Del. quantity	, -	+ Tolerance bar + : 0.3
cm3/1000 strokes	: 12.0	+ Shutoff solenoid
Tolerance		+ Volt : 12
cm3/1000 str. +-	: 1.0	+
Shutoff solenoid	-	+ Rated speed rpm : 800
Volt	: 12	+ Supply pomp
		+ pressure bar : 4.6
FULL-LOAD SPEED RE	EGULATION	+ Tolerance bar + : 0.3
		+ Shutoff solenoid
Rated speed rpm	: 2650	+ Volt : 12
vel. quantity	•	+
cm3/1000 strokes	: 12.0	+ OVERFLOW QUANTITY
Tolerance		+
cm3/1000 str. +-	: 2.0	+ Rated speed rpm : 2450
Shutoff solenoid		+ Overflow quantity
Volt	: 12	+ ccm/10s : 97.2
		+ Tolerance
		+
SET GRADUATED STAF		
CONTROL LEVER, IDL	LE STOP	+ Check tolerance
<b>5</b> -4-4		+ ccm/10s +: 41.6
Rated speed rpm	: 200	+ Shutoff solenoid
Del. quantity		+ Volt : 12
cm3/1000 strokes	: 40.0	Rated speed rpm : 600
Tolerance cm3/1000 str. +-	: 1.0	
Shutaff sclenoid	: 1.0	+ Overflow quantity + ccm/10s : 63.8
Volt	: 12	Tolerance . 05.5
٧٥٢٤	. 12	+ ccm/10s + : 22.2
		1
		+ Check tolerance
		+ ccm/10s +: 22.2
INJECTION-PUMP TES	ST SPECIFICATIONS	+ Shutoff solenoid
		+ Volt : 12
TIMING DEVICE CHAR	RACTERISTIC	+
		+ DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm	: 2200	†
	0.7	+ Rated speed rpm : 2650
SV travel mm	: 8.3	+ Del. quantity
Tolerance mm +	: 0.4	+ cm3/1000 strokes : 12.0
Check	. 0.7	Tolerance
tolerance mm +-	: 0.7	+ cm3/1000 str. +: 2.0
Shutoff solenoid Volt	: 12	Check tolerance cm3/1000s. + : 4.0
VOLL	. 12	Shutoff solenoid
Rated speed rpm	: 800	Volt : 12
hated speed (pill	. 000	1
SV travel mm	: 1.6	+ Rated speed rpm : 2580
Tolerance mm +	: 0.4	+ Del. quantity
Check	•	+ cm3/1000 strokes : 20.0
tolerance mm +	: 0.7	+ Tolerance
Shutoff solenoid		+ cm3/1000 str. $+$ : 3.0
Volt	: 12	+ Check tolerance
		+ cm3/1000s. $+$ : 5.0

Shutoff solenoid Volt	: 12	+ Rated speed rpm : 350 + Del. quantity
		+ cm3/1000 strokes : 1.5
Rated speed rpm : Del. quantity	: 2800	+ Tolerance + cm3/1000 str. +-: 1.5
cm3/1000 strokes : Folerance	1.5	Check tolerance cm3/1000s. +: 1.5
cm3/1000 str. +-: Check tolerance	1.5	FULL-LOAD STOP CONTROL LEVER
cm3/1000s. +-:	1.5	+
Shutoff solenoid Volt	: 12	Rated speed rpm : 350 Del. quantity
Rated speed rpm :	2450	cm3/1000 strokes : 1.5 Tolerance
Del.quantity cm3/1000 strokes :	25.5	+ cm3/1000 str. +-: 1.5 + Check tolerance
Tolerance cm3/1000 str. +- :	: 1.0	- cm3/1000s. +: 1.5
Check tolerance		<u>†</u>
Shutoff solenoid Volt	: 12	1
		Ŧ
Rated speed rpm : Del. quantity		EXHAUST-GAS RECIRCULATION
cm3/1000 strokes : Tolerance		+ Rated speed rpm : 1000
cm3/1000 str. +-: Check tolerance	: 1.5	Del. quantity cm3/1000 strokes : 15.3
cm3/1000s. +-: Shutoff solenoid	3.0	Tolerance - cm3/1000 str. +: 1.0
Volt	: 12	+ Check tolerance
	: 1500	cm3/1000s. +: 4.0 Shutoff solenoid
Del. quantity cm3/1000 strokes	: 24.0	+ Volt : 12
Tolerance cm3/1000 str. +-:	: 0.5	START TRANSITION
Check tolerance cm3/1000s. +-		Rated speed rpm : 340 Del. quantity
Shutoff solenoid	: 12	+ cm3/1000 strokes : 22.5
Volt	. 16	Tolerance + cm3/1000 str. + : 10.0
MECHANICAL SHUTOFF		
Rated speed rpm	: 2450	
Del. quantity cm3/1000 strokes	: 1.5	Rated speed rpm : 250 Del. quantity
Tolerance cm3/1000 str. +-		cm3/1000 strokes : 52.0 Tolerance
Check tolerance		cm3/1000 str. + : 17.0 Shutoff solenoid
	, 1, )	+ Volt : 12
cm3/1000s. + Shutoff solenoid Volt	: 12	, , ,

Dimension KF mm : 6,0
Tolerance mm + : +-0,2
Dimension MS mm : 1,0
Tolerance mm + : +-0,2

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19,07,96 Test oil : ISO 4113

: 0 460 484 100 Part no. Pump designation : VE4/8F2500R611-2

Customer-spec. information Customer : PSA

: TUD5 -L3 ADC Motor

Power KW 42.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance \*C +-:

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + :

Test nozzle holde

: 1 688 901 022 assembly

Opening pressure

bar Tolerance bar + :

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 0.8 Tolerance mm +:+0.2Outlet : A

## INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

5.0 Setting mm Tolerance mm 0.2 Shutoff solenoid

Volt 12

### SUPPLY PUMP PRESSURE

Rated speed rpm : Supply pomp

pressure bar 6.3 Tolerance bar + : 0.3 Shutoff solenoid

12 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

1500 Rated speed rpm :

Del. quantity cm3/1000 strokes :

Tolerance

cm3/1000 str. + :0.5 Spread

cm3/1000 strokes : 2.0

Shutoff solenoid 12 Volt

#### HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 2.0 Tolerance

cm3/1000 str. +-:

0.5 Shutoff solenoid 12 Volt

# IDLE DELIVERY

Rated speed rpm : 400 Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 str. + :1.0

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid + 12 + 12	SUPPLY PUMP PRESSURE CHARACTERISTIC			
+				
HIGH IDLE SETTING +	Rated speed rpm : 2200			
175	Supply pomp			
Rated speed rpm : 475	pressure bar : 8.1			
Del. quantity	Tolerance bar +: 0.3			
cm3/1000 strokes : 12.0	Shutoff solenoid Volt : 12			
cm3/1000 str. +-: 1.0	Volt : 12			
Shutoff solenoid	Rated speed rpm : 600			
Volt : 12	Supply pomp			
	pressure bar : 4.6			
FULL-LOAD SPEED REGULATION	Tolerance bar +: 0.3			
	Shutoff solenoid			
Rated speed rpm : 2650	Volt : 12			
Del. quantity				
cm3/1000 strokes : 12.0	OVERFLOW QUANTITY			
Tolerance +				
cm3/1000 str. +: 2.0 +	Rated speed rpm : 2450			
Shutoff solenoid +	Overflow quantity			
Volt : 12 +	ccm/10s : 97.2			
†	Tolerance			
CET CRANIATER STARTIALS RELIVERY	ccm/10s +-: 41.6			
SET GRADUATED STARTING DELIVERY	Check tolerance			
CONTROL LEVER, IDLE STOP	ccm/10s +: 41.6			
Rated speed rpm : 200	Shutoff solenoid			
Del. quantity	Volt : 12			
cm3/1000 strokes : 40.0				
Tolerance	Rated speed rpm : 600			
cm3/1000 str. + : 1.0	Overflow quantity			
Shutoff solenoid +	ccm/10s : 63.8			
Volt : 12 +	Tolerance			
+	ccm/10s +: 22.2			
†				
†	Sheck tolerance			
INJECTION—PUMP TEST SPECIFICATIONS	ccm/10s +-: 22.2 Shutoff solenoid			
INDECITOR FORD SEST SPECIFICATIONS	Volt : 12			
TIMING DEVICE CHARACTERISTIC	, 12			
TIMING PERIOD CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC			
Rated speed rpm : 2200				
1	Rated speed rpm : 2650			
SV travel mm : 8.3	Del. quantity			
Tolerance mm + : 0.4	cm3/1000 strokes : 12.0			
Check	Tolerance			
tolerance mm +: 0.7	cm3/1000 str. +: 2.0			
Shutoff solenoid	Check tolerance			
Volt : 12	cm3/1000s. +-: 4.0 Shutoff solenoid			
Rated speed rpm : 800	Volt : 12			
Rated speed rpm : 800	, vott . 12			
SV travel mm : 1.6	Rated speed rpm : 2580			
Tolerance mm + : 0.4	Del. quantity			
Check	cm3/1000 strokes : 20.0			
tolerance mm + : 0.7	Tolerance			
Shutoff solenoid	cm3/1000 str. + : 3.0			
Volt : 12 +	Check tolerance			
+	cm3/1000s. +-: 5.0			

Shutoff solenoid			1	Rated speed rpm		350
Volt		12	- 1	Del. quantity	•	330
VOCC	•	12	Τ		_	4 -
		200	†	cm3/1000 strokes	:	1.5
Rated speed rpm	: 28	300	+	Tolerance		
Del. quantity			+	cm3/1000 str. +	:	1.5
cm3/1000 strokes	:	1.5	+	Check tolerance		
Tolerance			1	cm3/1000s. +-	•	1.5
cm3/1000 str. +-		1.5	1	CIID7 10000:	•	1.5
	•	1.5	T	FULL LOAD STOD COM	TDO	LEVED
Check tolerance		4 5	Ť	FULL-LOAD STOP CON	HRUL	LEVER
cm3/1009s. +-	•	1.5	†			
Shutoff solenoid		•-	+	Rated speed rpm	:	350
Volt	:	12	+	Del. quantity		
			+	cm3/1000 strokes	:	1.5
Rated speed rpm	: 24	•50	+	Tolerance		
Del. quantity			1	cm3/1000 str. +	•	1.5
cm3/1000 strokes		26.0	1	Check tolerance	•	1.5
Tolerance	•	20.0	T	cm3/1000s. +		1.5
	_	4.0	Ť	CIIIS/ 10005. ——	•	1.3
cm3/1000 str. +-	:	1.0	†			
Check tolerance			+			
cm3/1000s. +-	:	2.2	+			
Shutoff salenoid			+			
Volt	:	12	+			
		. –	1			
Rated speed rpm	: 6	500	1			
Del. quantity	•		1	EXHAUST-GAS RECIRC	III AT	TON
cm3/1000 strokes		25.5	T	EXHAUST GAS RECERC	OLAI	1014
	•	2.3.3	T	<b>5</b> -4-4		4000
Tolerance			†		:	1000
cm3/1000 str. +-	:	1.5	+	Del. quantity		
Check tolerance			+	cm3/1000 strokes	:	15.3
cm3/1000s. +-	:	3.0	+	Tolerance		
Shutoff solenoid			1	cm3/1000 str. +-	:	1.0
Volt		12	1	Check tolerance	•	
VOCE	•	16		cm3/1000s. +-		4.0
0-4-4	. 45	:00	T			4.0
Rated speed rpm	: 13	500	+	Shutoff solenoid		40
Del. quantity			†	Volt	:	12
cm3/1000 strokes	:	24.0	+			
Tolerance			+	START TRANSITION		
cm3/1000 str. +-	:	0.5	+			
Check tolerance			+	Rated speed rpm	:	340
cm3/1000s. +-	•	2.2	1	Del. quantity		
Shutoff solenoid	•		1	cm3/1000 strokes		22.5
Volt		12	T	Tolerance	•	22.5
VOLE	•	12	T	cm3/1000 str. +		10.0
			<b>T</b>		:	10.0
			†	Shutoff solenoid		
MECHANICAL SHUTOFF	5		+	Volt	:	12
			+			
Rated speed rpm	: 24	<b>.</b> 50	+			
Del. quantity			+	Rated speed rpm	:	250
cm3/1000 strokes	:	1.5	+	Del. quantity		
Tolerance	-	- <del>-</del>	1	cm3/1000 strokes	:	52.0
cm3/1000 str. +-	•	1.5	1	Tolerance	•	
Check tolerance	•	,	1	cm3/1000 str. +-	•	17.0
		1.5	T		•	11.0
cm3/1000s. +	:	1.0	T	Shutoff solenoid		10
Shutoff solenoid		4.5	†	Volt	:	12
Volt	:	12	+			
			+	<del></del>		
	<del> </del>	<del></del>	+	ASSEMBLY AND ADJUS	TMEN	IT DIMENSIONS
ELECTR. SHUTOFF			+			
CONTROL LEVER, IDL	E STOP	•	1	Dimension K mm	: 3,	.7
23			1		: +-	
			1		•	-/-

Dimension KF mm : 6,0
Tolerance mm + : +-0,2
Dimension MS mm : 1,0
Tolerance mm + : +-0,2

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19.11.93 Edition : ISO 4113 Test oil

: 0 460 414 039 Part no. Pump designation : VE4/11F1350R257

Customer-spec. information

: IVECO-FIAT Customer

: 8040.25.200+220 Motor

### TEST BENCH REQUIREMENTS

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar +-: 0.05

Test nozzle holde

: 1 688 901 020 assembly

Opening pressure

bar 172 Tolerance bar + :

Test Lines : 1 680 750 000

Outside diameter : 6.00

2.00 x inside diameter : x length mm : 840

REMARKS

## BEGINNING OF DELIVERY

#### Prestroke

(as of UT) mm : 0,4 Tolerance mm +:+-0.02

Check

tolerance mm +-:+-0.04

## INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 1000 Aneroid pressure

hPa 1000

Setting mm 4.0 0.2 Tolerance mm + : Shutoff solenoid

Volt 24

## SUPPLY PUMP PRESSURE

Rated speed rpm : 1000

Aneroid pressure

hPa 1000

Supply pomp

pressure bar 6.0 Tolerance bar +-: 0.3

Shutoff solenoid

Volt 24

## FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800

Aneroid pressure

hPa 1000 Del. quantity

cm3/1000 strokes : 93.0

Tolerance

cm3/1000 str. + : 0.5

Spread

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 5.0

Shutoff solenoid

Volt 24

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 69.0

Tolerance

cm3/1000 str. +-: 0.5

Shutoff solenoid

24 Volt

Check tolerance

5.0 cm3/1000s.

IDLE SETTING

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 24.0

Tolerance	+	Shutoff solenoid	
cm3/1000 str. + :	2.0	Volt	24
	7	VOLL	. 24
Shutoff solenoid	<b>†</b>		
Volt :	24 +	SUPPLY PUMP PRESSU	RE CHARACTERISTIC
Spread	1		
cm3/1000 strokes :	3.5 ↓	Rated speed rpm	: 1350
Check tolerance	3.3		. 1330
	†	Aneroid pressure	
cm3/1000s. :	4.0	hPa	: 1000
	+	Supply pomp	
	1	pressure bar	: 7.3
	1	Tolerance bar +	
	Т		. 0.5
	†	Shutoff solenoid	
FULL-LOAD SPEED REGULAT	TION +	Volt	: 24
	+		
Rated speed rpm : '	1500	Rated speed rpm	: 800
Pressure hPa :	1000	nated speed I pill	. 000
	. †		500
Del. quantity	†		: 500
cm3/1000 strokes :	37.0	Aneroid pressure	
Tolerance	1	hPa	: 1000
cm3/1000 str. +-:	3.0	Supply pomp	
	7.5 T		: 3.9
Shutoff solenoid	<b>T</b>	pressure bar	
Volt :	24 +	Tolerance bar +-	: 0.3
	+	Shutoff solenoid	
STARTING FUEL DELIVERY	1	Volt	: 24
	1	, , ,	:
Bahad awasal ass	400 T	OVEREI OU OUANITATY	
Rated speed rpm :	100 +	OVERFLOW QUANTITY	
Del. quantity	+		
cm3/1000 strokes :	115.0 +	Rated speed rpm	: 1350
Tolerance	1	Aneroid pressure	
cm3/1000 str. +-:	25.0	hPa	: 1000
	25.0		1000
Shutoff solenoid	+	Overflow quantity	
Volt :	24 +	ccm/10s	: 97.2
	+	Tolerance	
	1	ccm/10s +-	: 41.6
	T		. 41.0
	T		
	+	Check tolerance	
	+	ccm/10s +-	: 41.6
INJECTION-PUMP TEST SPE	ECIFICATIONS +	Shutoff solenoid	
	1	Volt	
TIMING NEVICE CHARACTE	DICTIC		• 24
TIMING DEVICE CHARACTER			: 24
	412111		
	+	Rated speed rpm	: 24 : 500
Rated speed rpm :	1350	Rated speed rpm Aneroid pressure	: 500
	+	Rated speed rpm	
Aneroid pressure	1350	Rated speed rpm Aneroid pressure hPa	: 500
	+	Rated speed rpm Aneroid pressure hPa Overflow quantity	: 500 : 1000
Aneroid pressure hPa :	1350	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s	: 500
Aneroid pressure hPa :  SV travel mm :	1350 1000 6.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance	: 500 : 1000 : 63.8
Aneroid pressure hPa :	1350	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s	: 500 : 1000
Aneroid pressure hPa :  SV travel mm : Tolerance mm +-:	1350 1000 6.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance	: 500 : 1000 : 63.8
Aneroid pressure hPa :  SV travel mm : Tolerance mm +-: Check	1350 1000 6.7 0.4	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +-	: 500 : 1000 : 63.8
Aneroid pressure hPa :  SV travel mm : Tolerance mm +-: Check tolerance mm +-:	1350 1000 6.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s  Check tolerance	: 500 : 1000 : 63.8 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid	1350 1000 6.7 0.4 0.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +-	: 500 : 1000 : 63.8
Aneroid pressure hPa :  SV travel mm : Tolerance mm +-: Check tolerance mm +-:	1350 1000 6.7 0.4	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s Check tolerance ccm/10s Shutoff solenoid	: 500 : 1000 : 63.8 : 22.2 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid	1350 1000 6.7 0.4 0.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +-	: 500 : 1000 : 63.8 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :	1350 1000 6.7 0.4 0.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s Check tolerance ccm/10s Shutoff solenoid	: 500 : 1000 : 63.8 : 22.2 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm +: Check tolerance mm +: Shutoff solenoid Volt :  Rated speed rpm :	1350 1000 6.7 0.4 0.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s  Check tolerance ccm/10s  Shutoff solenoid	: 500 : 1000 : 63.8 : 22.2 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure	1350 1000 6.7 0.4 0.7 24	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s  Check tolerance ccm/10s  Shutoff solenoid	: 500 : 1000 : 63.8 : 22.2 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm +: Check tolerance mm +: Shutoff solenoid Volt :  Rated speed rpm :	1350 1000 6.7 0.4 0.7	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt DELIVERY AND BREAK	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa :	1350 1000 6.7 0.4 0.7 24 800 1000	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt DELIVERY AND BREAK	: 500 : 1000 : 63.8 : 22.2 : 22.2
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure	1350 1000 6.7 0.4 0.7 24 800 1000 2.1	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt  DELIVERY AND BREAK Rated speed rpm Aneroid pressure	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC : 1500
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : SV travel mm :	1350 1000 6.7 0.4 0.7 24 800 1000	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt DELIVERY AND BREAK	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa :  SV travel mm : Tolerance mm + :	1350 1000 6.7 0.4 0.7 24 800 1000 2.1	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt  DELIVERY AND BREAK Rated speed rpm Aneroid pressure hPa	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC : 1500
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check	1350 1000 6.7 0.4 0.7 24 800 1000 2.1 0.4	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt  DELIVERY AND BREAK Rated speed rpm Aneroid pressure hPa Del. quantity	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC : 1500 : 1000
Aneroid pressure hPa :  SV travel mm : Tolerance mm + : Check tolerance mm + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa :  SV travel mm : Tolerance mm + :	1350 1000 6.7 0.4 0.7 24 800 1000 2.1	Rated speed rpm Aneroid pressure hPa Overflow quantity ccm/10s Tolerance ccm/10s +- Check tolerance ccm/10s +- Shutoff solenoid Volt  DELIVERY AND BREAK Rated speed rpm Aneroid pressure hPa	: 500 : 1000 : 63.8 : 22.2 : 22.2 : 24 AWAY CHARACTERISTIC : 1500 : 1000

**B10** 

Tolerance		+	Tolerance	
cm3/1000 str. +-	: 3.0	1	cm3/1000 str. +:	0.5
Check tolerance		+	Check tolerance	
cm3/1000s. +-	: 6.0	+	cm3/1000s. +-:	3.5
Shutoff solenoid		+	Shutoff solenoid	
Volt	: 24	+	Volt :	24
	4.455	+		
Rated speed rpm	: 1600	†		
Aneroid pressure	4000	†	MECHANICAL SHUTOFF	
hPa	: 1000	†	Section and annual	4756
Del. quantity	. 4 "	Ť	Rated speed rpm :	1350
cm3/1000 strokes Tolerance	: 1.5	Ť	Aneroid pressure hPa :	1000
cm3/1000 str. +-	: 1.5	Ī	Del. quantity	1000
Check tolerance	. 1.5	I	cm3/1000 strokes :	1.5
cm3/1000s. +-	: 1.5	I	Tolerance	1.5
Shutoff solenoid		· 1	cm3/1000 str. +-:	1.5
Volt	: 24	1	Check tolerance	1.5
	•	1	cm3/1000s. +-:	1.5
Rated speed rpm	: 500	+	Shutoff solenoid	. • -
Aneroid pressure		+	Volt :	24.
hPa	: 250	+		
Del. quantity		+		
cm3/1000 strokes	: 79.5	+	ELECTR. SHUTOFF	
Tolerance		+	CONTROL LEVER, IDLE	STOP
cm3/1000 str. +-	: 0.5	+		
Check tolerance		†	Rated speed rpm :	350
cm3/1000s. +	: 4.0	†	Del. quantity	4.5
Shutoff solenoid	2/	†	cm3/1000 strokes :	1.5
Volt	: 24	†	Tolerance	1.5
Dadayl spread upt	: 1350	†	cm3/1000 str. +-: Check tolerance	1.0
Rated speed rpm Aneroid pressure	: 1350	I	cm3/1000s. +-:	1.5
hPa	: 1000	I	CIN37 10003.	1.5
Del. quantity		1		
cm3/1000 strokes	: 90.5	1	IDLE DELIVERY	
Tolerance		1		
cm3/1000 str. +-	: 1.5	+	Rated speed rpm :	430
Check tolerance		+	Del. quantity	
cm3/1000s. +-	: 3.5	+	cm3/1000 strokes :	1.5
Shutoff solenoid		+	Tolerance	
Volt	: 24	+	cm3/1000 str. +-:	1.5
	500	†	Check tolerance	4 5
Rated speed rpm	: 500	Ť	cm3/1000s. +-: Shutoff solenoid	1.5
Aneroid pressure	: 1000	Ī		24
hPa Del. quantity	: 1000	Ī	Voit :	24
cm3/1000 strakes	: 39.5	I	Rated speed rpm :	400
Tolerance	. 137.3	1	Del. quantity	
cm3/1000 str. +	: 1.5	1	cm3/1000 strokes :	8.0
Check tolerance	•	+	Tolerance	
cm3/1000s. +-	: 3.0	+	cm3/1000 str. + :	5.0
Shutoff solenoid		+	Shutoff solenoid	
Volt	: 24	+	Volt :	24
		+		
Rated speed rpm	: 800	+		
Aneroid pressure		†		
hPa	4000			
	: 1000	†		
Del. quantity	: 1000 : 93.0	‡		

### START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff selenoid

Shutoff solenoid Volt : 24

Rated speed rpm : 150 Del. quantity cm3/1000 strokes : 115.0 Tolerance

cm3/1000 str. +-: 25.0

Shutoff solenoid Volt :

## ASSEMBLY AND ADJUSTMENT DIMENSIONS

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Dimension K mm : Dimension KF mm : 5,3
Tolerance mm + : +0,02
Dimension MS mm : 1,4
Tolerance mm + : +0,2

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 16.01.87 Edition : ISO 4113 Test oil

: 0 460 414 047 Part no. Pump designation : VE4/11F1200R277

Customer-spec. information Customer : CASE

Motor : D 268/885

TEST BENCH REQUIREMENTS

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + :

Test nozzle halde

: 1 688 901 020 assembly

Opening pressure

Tolerance bar +-:

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800

5.5 Setting mm 0.2 Tolerance mm

SUPPLY PUMP PRESSURE

800 Rated speed rpm :

Supply pomp

pressure bar 4.0 Tolerance bar + : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

008 Rated speed rpm :

Del. quantity cm3/1000 strokes : 82.0

Tolerance

cm3/1000 str. + :0.5

Spread

cm3/1000 strokes : 3.5

IDLE SETTING

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 18.5

Tolerance

cm3/1000 str. +-: 2.0

Spread

cm3/1000 strokes : 3.0

Check tolerance

3.5 cm3/1000s.

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1260

Del. quantity

cm3/1000 strokes : 57.0

Tolerance

cm3/1000 str. +-: 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 103

Del. quantity

cm3/1000 strokes : 110.0

Tolerance

cm3/1000 str. +-: 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150

SV travel mm : 7.9

**B13** 

Tolerance mm + : 0.4	+ Del. quantity
Check	+ cm3/1000 strokes : 1.5
tolerance mm + : 0.7	+ Tolerance
Dated and and and 500	+ cm3/1000 str. + : 1.5
Rated speed rpm : 500	+ Check tolerance + cm3/1000s. +-: 1.5
SV travel mm : 3.0	T (1115/10005: 4-2. 1.5
Tolerance mm + : 0.4	+ Rated speed rpm : 1320
Check	- Del. quantity
tolerance mm + : 0.7	+ cm3/1000 strokes : 25.0
AUDDLY DUMP PRODUCT CHARACTERS	+ Tolerance
SUPPLY PUMP PRESSURE CHARACTERISTIC	- cm3/1000 str. +: 15.0 - Check tolerance
Rated speed rpm : 1150	- cm3/1000s. +: 15.0
Supply pomp	
pressure bar : 5.3	+ Rated speed rpm : 1150
Tolerance bar +-: 0.3	+ Del. quantity
Patrod an rod man a 500	+ cm3/1000 strokes : 85.5
Rated speed rpm : 500 Supply pomp	+ Tolerance + cm3/1000 str. + : 1.5
pressure bar : 2.9	Check tolerance
Tolerance bar + : 0.3	+  cm3/1000s. + : 3.0
	+
OVERFLOW QUANTITY	+ Rated speed rpm : 500
Rated speed rpm : 1150	+ Del. quantity + cm3/1000 strokes : 77.5
Rated speed rpm : 1150 Overflow quantity	Tolerance
ccm/10s : 97.2	+ cm3/1000 str. + : 2.0
Tolerance	† Check tolerance
ccm/10s +: 41.6	+  cm3/1000s. + : 3.5
Charle de Lamana	Total anad mm . 900
Check tolerance ccm/10s +: 41.6	+ Rated speed rpm : 800 + Del. quantity
CCIII/ 103	cm3/1000 strokes : 82.0
Rated speed rpm : 500	+ Tolerance
Overflow quantity	+  cm3/1000  str. + : 0.5
ccm/10s : 63.8	Check tolerance
Tolerance ccm/10s + : 22.2	+  cm3/1000s. + : 2.5
CUII/ 105	
Check tolerance	MECHANICAL SHUTOFF
ccm/10s +: 22.2	1
DELIVERY AND BREAKAWAY CHARACTERISTIC	+ Rated speed rpm : 1150 + Del. quantity
DELIVERY AND DREAMANNY CHARACTERISTIC	+ cm3/1000 strokes : 1.5
Rated speed rpm : 1260	Tolerance
Del. quantity	+  cm3/1000  str. + : 1.5
cm3/1000 strakes : 57.0	+ Check tolerance
Tolerance	+  cm3/1000s. + : 1.5
cm3/1000 str. +-: 3.0 Check tolerance	1
cm3/1000s. +-: 4.5	I
	IDLE DELIVERY
Rated speed rpm : 1370	+
Del. quantity	Rated speed rpm : 450
cm3/1000 strokes : 5.0 Check tolerance	+ Del. quantity + cm3/1000 strokes : 2.0
cm3/1000s. + : 5.0	Tolerance
THE THESE STATES	
	+ cm3/1000 str. +-: 2.0

Check tolerance cm3/1000s. +-:2.0

## START TRANSITION

Rated speed rpm : 450

Del. quantity cm3/1000 strokes : 70.0

Tolerance

cm3/1000 str. + : 10.0

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 str. +-: 25.0

## ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3 Tolerance mm +: +0,1 Dimension KF mm : 5,5 Tolerance mm +: +0,2 Dimension MS mm : 1,3 Tolerance mm +-:+-0.2

## CONTROL LEVER POSITION SET

Control lever

position YA mm : 37,2..39,2

Control lever

position YB mm : 50,1..58,3

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 17.08.94 Edition : ISO 4113 Test oil

: 0 460 426 149 Part no. Pump designation : VE6/12F1250R373-3

Customer-spec. information Customer : CDC : 6 BTA-590 Motor

# TEST BENCH REQUIREMENTS

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar +-:

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

250 Tolerance bar +-:

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 840

REMARKS

### BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,85 Tolerance mm +:+0.02

Outlet

Prestroke

(as of UT) mm: 0,3 Tolerance mm +:+0.02

Check

tolerance mm +:+0.04

## INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 750

Aneroid pressure

1000 nFa.

Setting mm 1.6 Tolerance mm +: 0.2

## SUPPLY PUMP PRESSURE

Rated speed rpm : 750

Aneroid pressure

1000 :

Supply pomp

pressure bar Tolerance bar +-: 0.3

## FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750

Aneroid pressure

hPa 1000

Del. quantity

cm3/1000 strokes : 82.5

Tolerance

cm3/1000 str. + : 0.5

Spread

cm3/1000 strokes : 4.0

Check tolerance

4.5 cm3/1000s.

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 40.5

Tolerance

cm3/1000 str. +-: 0.5

Check tolerance

4.5 cm3/1000s.

## IDLE SETTING

Rated speed rpm : 375

Del. quantity

cm3/1000 strokes : 6.0

Tolerance

cm3/1000 str. +: 2.0

Spread

cm3/1000 strokes : 5.5

Check tolerance cm3/1000s. :	7.0	Aneroid pressure hPa: 1800 Supply pomp pressure bar: 2.4 Tolerance bar +: 0.3	
FULL-LOAD SPEED REG	GULATION	OVERFLOW QUANTITY	
Rated speed rpm :	: 1300 : 1000	Rated speed rpm : 1250 Aneroid pressure	
Del. quantity cm3/1000 strokes		hPa : 1000 - Overflow quantity	•
Tolerance cm3/1000 str. +		ccm/10s : 97.2	
STARTING FUEL DELIV		ccm/10s +-: 41.6	•
Rated speed rpm :	: 100	Check tolerance + : 41.6	•
Del. quantity cm3/1000 strokes : Tolerance	95.0	Rated speed rpm : 500 Overflow quantity	
cm3/1000 str. +-:	25.0	ccm/10s : 62.5	;
		+ ccm/10s +-: 20.8	3
		+ Check tolerance + ccm/10s + : 20.8	}
INJECTION-PUMP TEST	T SPECIFICATIONS	DELIVERY AND BREAKAWAY CHARA	CTERISTIC
TIMING DEVICE CHARA	ACTERISTIC	-	.0.61120120
	: 1050	Rated speed rpm : 1300 Aneroid pressure	
Aneroid pressure hPa	: 1000	hPa : 1000 Del. quantity	
SV travel mm	2.7	cm3/1000 strokes : 68.0 + Tolerance + cm3/1000 str. + : 3.0	
Tolerance mm + :	: 0.4 : 0.7	+ Check tolerance + cm3/1000s. + : 6.0	
tolerance mm + :		+	,
Rated speed rpm : Aneroid pressure		Rated speed rom : 1330 Aneroid pressure	
	: 1000	hPa : 1000 Del. quantity	
SV travel mm : Tolorance mm + :	0.8 0.4	cm3/1000 strokes : 35.0	
Check tolerance mm +-:	: 0.7	+ cm3/1000s. +-: 20.0	}
SUPPLY PUMP PRESSUE	RE CHARACTERISTIC	Rated speed rpm : 1400 Aneroid pressure hPa : 1000	1
Rated speed rpm	: 1050	Del. quantity  cm3/1000 strokes : 1.5	
• • •	: 1000	+ Tolerance + cm3/1000 str. + : 1.5	
Supply pomp pressure bar	4.6	+ Check tolerance	
Tolerance bar +- :	: 0.3	+ cm3/1000s. +: 1.5	5
Rated speed rpm	: 500	Rated speed rpm : 700	

Aneroid pressure hPa : Del. quantity	450	† iDLE DELIVERY
cm3/1000 strokes : Tolerance	67.5	Rated speed rpm : 500
cm3/1000 str. + :	0.5	+ Del. quantity + cm3/1000 strokes : 2.0
cm3/1000s. +-:	4.5	+ Tolerance + cm3/1000 str. ← : 2.0
Rated speed rpm : Aneroid pressure hPa :	1250 1000	+ Check tolerance + cm3/1000s. +-: 2.0
Del. quantity cm3/1000 strokes :	75.0	<u> </u>
Tolerance cm3/1000 str. + :	1.5	<u> </u>
Check tolerance cm3/1000s. +-:	3.0	+ START TRANSITION
Rated speed rpm :	1050	Rated speed rpm : 420
Aneroid pressure hPa :	1000	+ Del. quantity + cm3/1000 strokes : 40.0
Del. quantity cm3/1000 strokes :	80.0	+ Tolerance + cm3/1000 str. +-: 20.0
Tolerance cm3/1000 str. +-: Check tolerance	1.5	+ Rated speed rpm : 240
cm3/1000s. +-:	3.0	Del. quantity  - cm3/1000 strokes : 100.0
Rated speed rpm : Aneroid pressure	500	Tolerance + cm3/1000 str. +-: 25.0
hPa : Del. quantity	1000	<u> </u>
cm3/1000 strokes :	82.5	+ ASSEMBLY AND ADJUSTMENT DIMENSIONS
Tolerance		
Tolerance cm3/1000 str. +-:	4.0	Dimension KF mm : 5,2 Tolerance mm + : +0,2
Tolerance cm3/1000 str. + :  Rated speed rpm : Aneroid pressure	750	
Tolerance cm3/1000 str. + :  Rated speed rpm : Aneroid pressure hPa : Del. quantity	750 1000	Tolerance mm + : +0,2 + MS1 dimension mm : 1,6
Tolerance cm3/1000 str. + :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	750 1000 82.5	Tolerance mm + : + 0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION
Tolerance cm3/1000 str. + :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	750 1000	Tolerance mm + : + 0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION SET
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	750 1000 82.5 0.5	Tolerance mm + : + 0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	750 1000 82.5 0.5 3.0	Tolerance mm + : +-0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION  SET  Control lever  position YA mm : 34,838,8  Control lever
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/100Cs. +:  MECHANICAL SHUTOFF  Rated speed rpm: Aneroid pressure	750 1000 82.5 0.5 3.0	Tolerance mm + : +-0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION  SET  Control lever  position YA mm : 34,838,8
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:  MECHANICAL SHUTOFF  Rated speed rpm: Aneroid pressure hPa: Del. quantity	750 1000 82.5 0.5 3.0 1250 1000	Tolerance mm + : +-0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION  SET  Control lever  position YA mm : 34,838,8  Control lever
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:  MECHANICAL SHUTOFF  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance	750 1000 82.5 0.5 3.0 1250 1000 1.5	Tolerance mm + : +-0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION  SET  Control lever  position YA mm : 34,838,8  Control lever
Tolerance cm3/1000 str. +:  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:  MECHANICAL SHUTOFF  Rated speed rpm: Aneroid pressure hPa: Del. quantity cm3/1000 strokes:	750 1000 82.5 0.5 3.0 1250 1000	Tolerance mm + : +-0,2  MS1 dimension mm : 1,6  Tolerance mm + : +0,15/-0,1  CONTROL LEVER POSITION SET  Control lever position YA mm : 34,838,8  Control lever position YB mm : 43,748,1

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.07.96 Edition Test oil : ISO 4113

: 0 460 494 362 Part no. Pump designation: VE4/9F2300R597-1

Customer-spec. information

Customer

: 1,9 L UD A3/B4 Motor

## TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance °C +:

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar +-:

Test nozzle holde

assembly : 1 688 901 000

Opening pressure

147 bar Tolerance bar + :

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,8 Tolerance mm +: +-0.02Outlet |

## INJECTION PUMP SETTING VALUES

### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Aneroid pressure

hPa 750

Setting mm Tolerance mm +-: 0.1

Shutoff solenoid Volt 12

## SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Aneroid pressure

750 hPa Supply pomp

pressure bar Tolerance bar + : 0.3

Shutoff solenoid Volt

12

## FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250

Aneroid pressure

750 hPa :

Del. quantity

cm3/1000 strokes : 50.5

Tolerance

cm3/1000 str. +-: 0.5

Spread

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000s. 3.0

Shutoff solenoid

Volt

12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance

3.0 cm3/1000s.

## HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550

Del. quantity

cm3/1000 strokes : 7.5

Tolerance

cm3/1000 str. +-: 0.5

Shutoff solenoid Volt : 12	+ Shutoff solenoid + Volt : 12
IDLE DELIVERY	PRESSURE DIFFERENCE
Rated speed rpm : 450 Del. quantity	Rated speed rpm : 1250 Del. quantity
cm3/1000 strokes : 17.0 Tolerance	- cm3/1000 strokes : -0.2 - Tolerance
cm3/1000 str. +-: 1.0 Spread	- cm3/1000 str. +-: 0.1 - Shutoff solenoid
cm3/1000 strokes : 2.0 Shutoff solenoid	+ Volt : 12
Volt : 12	TIMING-DEVICE TRAVEL DIFFERENCE
HIGH IDLE SETTING	Rated speed rpm : 1250  Del. quantity
Rated speed rpm : 550 Del. quantity	- cm3/1000 strokes : -2.0
cm3/1000 strokes : 17.0 Tolerance	- cm3/1000 str. + : 0.1 - Shutoff solenoid
cm3/1000 str. +-: 1.0 Shutoff solenoid	+ Volt : 12
Volt : 12	INJECTION-PUMP TEST SPECIFICATIONS
FULL-LOAD SPEED REGULATION	TIMING DEVICE CHARACTERISTIC
Rated speed rpm : 2600 Pressure hPa : 750	+ Rated speed rpm : 2100
Del. quantity cm3/1000 strokes : 11.0	+ Aneroid pressure + hPa : 750
Tolerance cm3/1000 str. +-: 2.0	+ - SV travel mm : 8.3
Shutoff solenoid Volt : 12	Tolerance mm + : 0.3 Check
	tolerance mm +: 0.8 Shutoff solenoid
SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP	+ Volt : 12
Rated speed rpm : 100	+ Rated speed rpm : 750 Ameroid pressure
Del. quantity cm3/1000 strokes : 40.0	+ hPa : 750
Tolerance cm3/1000 str. + : 3.0	+ SV travel mm : 1.8 + Tolerance mm +-: 0.3
Shutoff solenoid Volt : 12	+ Check + tolerance mm + : 0.8
	+ Shutoff solenoid + Volt : 12
LOAD-DEPENDENT START OF DELIVERY SETTING	SUPPLY PUMP PRESSURE CHARACTERISTIC
DELIVERY DIFFERENCE	Rated speed rpm : 2100
Rated speed rpm : 1250	+ Aneroid pressure + hPa : 750
Del. quantity cm3/1000 strokes : -5.5	+ Supply pomp + pressure bar : 7.7 + Tolerance bar +-: 0.3
Tolerance cm3/1000 str. +: 1.0	+ Shutoff solenoid
	+ Volt : 12

Dahad award was	. 750	†	Check tolerance	( 0
Rated speed rpm Aneroid pressure	: 750	1	cm3/1000s. +-: Shutoff solenoid	6.0
hPa	: 750	I	Volt :	12
Supply pomp		4		
pressure bar	: 4.6	+	Rated speed rpm :	2750
Tolerance bar +	: 0.3	†	Aneroid pressure	750
Shutoff solenoid Volt	: 12	†	hPa :	750
VOCE	12	Ī	Del. quantity cm3/1000 strokes :	1.5
OVERFLOW QUANTITY		1	Tolerance	1.0
		+	cm3/1000 str. +-:	1.5
	: 1250	+	Check tolerance	
Aneroid pressure	. 750	†	cm3/1000s. +:	1.5
hPa Overflow quantity	: 750	Ī	Shutoff solenoid Volt :	12
ccm/10s	: 77.7	· I	vott .	12
Tolerance		1	Rated speed rpm :	2100
ccm/10s +-	: 22.2	+	Aneroid pressure	
		†	hPa :	750
Check tolerance ccm/10s +-	: 34.7	†	Del. quantity cm3/1000 strokes :	43.0
Shutoff solenoid	. 54.7	I	Tolerance	45.0
Volt	: 12	1	cm3/1000 str. +:	1.0
		+	Check tolerance	
Rated speed rpm	: 2100	+	cm3/1000s. +-:	2.2
Aneroid pressure	: 750	†	Shutoff solenoid	12
hPa Overflow quantity		Ī	Volt :	12
ccm/10s	: 97.2	I	Rated speed rpm :	450
Tolerance		+	Del. quantity	
ccm/10s +-	: 41.6	+	cm3/1000 strokes :	40.2
Alanka lamma		†	Tolerance	7.0
Check tolerance ccm/10s +-	: 55.5	Ť	cm3/1000 str. + : Check tolerance	3.0
Shutoff solenoid	. ,,,,	I	cm3/1000s. +-:	5.5
Volt	: 12	+	Shutoff solenoid	
		+	Volt :	12
DELIVERY AND BREA	KAWAY CHARACTERISTI	c †	Section and an experience of	4050
Dated anaed nam	: 2600	İ	Rated speed rpm : Aneroid pressure	1250
Rated speed rpm Aneroid pressure	. 2000	I	hPa :	750
hPa	: 750	+	Del. quantity	
Del. quantity	44.5	7	cm3/1000 strokes :	50.5
cm3/1000 strokes	: 11.0	†	Tolerance	0.5
Tolerance cm3/1000 str. +-	: 2.0	Ī	cm3/1000 str. +-: Check tolerance	0.5
Check tolerance	. 2.0	I	cm3/1000s. +-:	2.2
cm3/1000s. +-	: 4.0	+	Shutoff solenoid	
Shutoff solenoid		+	Volt :	12
Volt	: 12	t	Datad annal man	700
Rated speed rpm	: 2400	1	Rated speed rpm : Aneroid pressure	700
Aneroid pressure	. 2700	I	hPa :	180
hPa	: 750	+	Tolerance	
Del. quantity	771 6	+	cm3/1000 str. +-:	0.5
cm3/1000 strokes	: 37.5	†	Check tolerance cm3/1000s. +-:	0.5
Tolerance cm3/1000 str. +-	: 5.0	İ	cm3/1000s. +-: Check tolerance	0.5
CHID/ TOOU BELL TO		I	cm3/1000s. +-:	0.5
		'		

Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1000s. $+$ : 4.0
, , , ,	+ Shutoff solenoid
Rated speed rpm : 700	+ Volt : 12
Aneroid pressure	1
	TIMING-DEVICE TRAVEL DIFFERENCE
	T ITHING-DEVICE INAVEL DIFFERENCE
Del. quantity	T
cm3/1000 strokes : 6.0	+ Rated speed rpm : 1250
Tolerance	Del. quantity
cm3/1000 str. +-: 1.0	+ cm3/1000 strokes : −2.0
Check tolerance	† Tolerance
cm3/1000s. + : 1.0	+ cm3/1000 str. +-: 0.1
Shutoff solenoid	+ Check tolerance
Volt : 12	$\pm$ cm3/1000s. $\pm$ : 0.1
	+ Shutoff solenoid
	+ Volt : 12
ELECTR. SHUTOFF	↓ DELIVERY DIFFERENCE
CONTROL LEVER, IDLE STOP	
ANILITAR PRACTY TAPE DIOL	Rated speed rpm : 1250
Rated speed rpm : 450	Del. quantity
Del. quantity cm3/1000 strokes : 1.5	+ cm3/1000 strokes : 1.5
	+ Tolerance
Tolerance	+  cm3/1000  str. + : 1.5
cm3/1000 str. + : 1.5	- Check tolerance
Check tolerance	+ cm3/1000s. +: 1.5
cm3/1000s. +-: 1.5	+ Shutoff solenoid
Spread	+ Volt : 12
cm3/1000 strokes : 5.0	+
	+ PRESSURE DIFFERENCE
FULL-LOAD STOP CONTROL LEVER	+
	+ Rated speed rpm : 1250
Rated speed rpm : 450	+ Supply pomp
Del. quantity	+ pressure bar : -1.2
cm3/1000 strokes : 1.5	+ Tolerance bar + : 0.2
Tolerance	+ Shutoff solenoid
cm3/1000 str. + : 1.5	+ Volt : 12
Spread	1
cm3/1000 strokes : 5.0	TIMING-DEVICE TRAVEL DIFFERENCE
	T ITHING-DEVICE INAVEL DIFFERENCE
Check tolerance cm3/1000s. + : 1.5	T Dottod amond mr. 1250
	+ Rated speed rpm : 1250
Spread	+ Tolerance mm + : 0.2
cm3/1000 strokes : 5.0	+ Check
	tolerance mm +: 0.6
	+ Shutoff solenoid
	† Volt : 12
	†
	† EXHAUST-GAS RECIRCULATION
CHECKING LOAD-DEPENDENT	†
START OF DELIVERY	+ Rated speed rpm : 1000
	+ Aneroid pressure
DELIVERY DIFFERENCE	+ hPa : 750
	+ Del. quantity
Rated speed rpm : 1250	+ cm3/1000 strokes : 35.0
Del. quantity	† Tolerance
cm3/1000 strokes : -9.0	+ cm3/1000 str. $+$ : 1.0
Tolerance	Check tolerance
cm3/1000 str. +-: 2.0	+ cm3/1000s. +-: 3.0
	+
	·

Shutoff solenoid

12 Volt

START TRANSITION

Rated speed rpm : 380

Del. quantity cm3/1000 strokes :

41.0

Tolerance

cm3/1000 str. + :10.0

Shutoff solenoid

Volt 12

Rated speed rpm : 180

Del. quantity

45.0

cm3/1000 strokes :

Tolerance cm3/1000 str. + :

10.0

Shutoff solenoid

12 Volt

## ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm Tolerance mm +:+0,1Dimension KF mm : 6,0 Tolerance mm +:+0.2Dimension MS mm : 1,2 Tolerance mm + : + -0.2

**MICROSWITCH** 

SET

: 0,8...3,0

: ARF 12,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 37,6..41,6

Control lever

position YB mm : 50,4..53,3

Refer to Service	Info for test and
adjustment instr See microcard(s)	uctions.
Edition Test oil	: 22.06.94 : ISO 4113
Part no. Pump designation	: 0 460 494 373 : VE4/9F2300R597-4
Customer-spec. i	nformation : VW
Motor	: 1,9 L UD A3
TEST BENCH REQUI	REMENTS
Calibrating-oil return	
temperature °C Tolerance °C +	- : 45 - : 1
Overflow restriction mm	; 0.55
Inlet press. bar Tolerance bar  +	: 0.35 -: 0.05
Test nozzle hold assembly	le ; 1 688 901 000
Op <mark>ening pressure</mark> bar	: 147
Tolerance bar +	-: 3
Test lines	: 1 680 750 000
Outside diameter	: 6.00
x inside diamete x length mm	r: 2.00 : 840
REMARKS	

Rated speed rpm Aneroid pressure	: 1250
hPa	: 750
Setting mm Tolerance mm + Shutoff solenoid	: 4.4 : 0.1
Volt	: 12
SUPPLY PUMP PRESS	URE
Rated speed rpm Aneroid pressure	: 1250
hPa Supply pomp	: 750
pressure bar Tolerance bar +-	: 5.7 : 0.3
Shutoff solenoid Volt	: 12
FULL-LOAD DELIVER	Y WITH BOOST PRESSURE
Rated speed rpm	: 1250
Aneroid pressure hPa	: 750
Del. quantity cm3/1000 strokes	: 50.5
Tolerance cm3/1000 str. +-	.: 0.5
Spread cm3/1000 strokes Check tolerance	: 2.5
cm3/1000S. Shutoff solenoid	: 3.0
Volt	: 12
FULL-LOAD DELIV.	WITHOUT BOOST PRESSURE
Check tolerance cm3/1000s.	: 3.0
HOUSING-FIXED IDL RESIDUAL QUANTITY	
Rated speed rpm Del. quantity	: 550
cm3/1000 strokes Tolerance	: 7.5
cm3/1000 str. +- Shutoff solenoid	·: 0.5
Volt	: 12
IDLE DELIVERY	
Del. quantity	: 450
cm3/1000 strokes	: 17.0

TIMING DEVICE TRAVEL

- 1		
Tolerance	+	Tolerance
cm3/1000 str. +-	: 1.0	cm3/1000 str. +-: 0.1
Spread	+	Shutoff solenoid
cm3/1000 strokes	: 2.0	· Volt : 12
Shutoff solenoid	1	
Volt	: 12 +	TIMING-DEVICE TRAVEL DIFFERENCE
VOCC	. '2	ITITING PEATOR INVARE DITTENENCE
HIGH IDLE SETTING	Ţ	Dated around pure a 1250
UTOH THE SELLTING	Ţ	Rated speed rpm : 1250
Dada da anadan		Del. quantity
Rated speed rpm	: 500 +	cm3/1000 strokes : -2.0
Del. quantity	†	Tolerance
cm3/1000 strokes	: 17.0	cm3/1000 str. +-: 0.1
Tolerance	+	Shutoff solenoid
cm3/1000 str. +	: 1.0	· Volt : 12
Shutoff solenoid	<u> </u>	•
Volt	: 12 +	
1010	1	INJECTION-PUMP TEST SPECIFICATIONS
FULL-LOAD SPEED RE	ECULATION I	THOUGHTON FORM IEST SPECIFICATIONS
FULL-LUAD SPEED RE	EGUCATION	TIMING DELICE CHARACTERICITS
make the second of	7	TIMING DEVICE CHARACTERISTIC
Rated speed rom	: 2600 +	
Pressure hPa	: 750 <del> </del>	Rated speed rpm : 2100
Del. quantity	+	Aneroid pressure
cm3/1000 strokes	: 11.0	· hPa : 750
Tolerance	+	
cm3/1000 str. +-	: 2.0	SV travel mm : 8.3
Shutoff solenoid	1	Tolerance mm + : 0.3
Volt	: 12	Check
VOCE	: 12	
	Ť	
	†	Shutoff solenoid
SET GRADUATED STAF		· Volt : 12
CONTROL LEVER, IDI	_E STOP +	•
	+	Rated speed rpm : 750
Rated speed rom	: 100	Aneroid pressure
Del. quantity	3.	hPa : 750
cm3/1000 strokes	: 40.0	
Tolerance	1	SV travel mm : 1.8
cm3/1000 str. +	: 3.0	Tolerance mm + : 0.3
	. 3.0	
Shutoff solenoid	1	Check
Volt	: 12	tolerance mm + : 0.8
	+	Shutoff solenoid
	+	· Volt : 12
LOAD-DEPENDENT STA	ART OF DELIVERY +	•
SETTING	1	SUPPLY PUMP PRESSURE CHARACTERISTIC
· = / <del>·</del>	1	•
DELIVERY DIFFERENCE	7E 1	Rated speed rpm : 2100
		· Aneroid pressure
Rated speed rpm	· 1250	hPa : 750
	T 1230	
Del. quantity		Supply pomp
cm3/1000 strokes	: -5.5	pressure bar : 7.7
Tolerance	+	Tolerance bar +: 0.3
cm3/1000 str. +-	: 1.0 +	· Shutoff solenoid
Shutoff solenoid	+	· Volt : 12
Volt	: 12	•
	1	- Rated speed rpm : 750
PRESSURE DIFFERENCE	re 1	- Aneroid pressure
I VECTORIE NELL FUELA	1	hPa : 750
Datad annad ann	: 1250	Supply pomp
Rated speed rpm	1230	
Del. quantity	†	pressure bar : 4.6
cm3/1000 strokes	: -0.2	Tolerance bar + : 0.3
	+	•

Shutoff solenoid Volt	:	12		1	Del. quantity cm3/1000 strokes	:	1.5
	·			+	Tolerance		
OVERFLOW QUANTITY	•			1	cm3/1000 str. +-	:	1.5
Rated speed rpm	:	1250		Ţ	cm3/1000s. +	:	1.5
Aneroid pressure		750		+	Shutoff solenoid		40
<pre>hPa Overflow quantity</pre>		750		1	Volt	:	12
com/10s	:	77.7		1	Rated speed rpm	:	2100
Tolerance		22.2		+	Aneroid pressure		750
ccm/10s +-	•	22.2		1	hPa Del. quantity	:	750
Check tolerance				+	cm3/1000 strokes	:	43.0
ccm/10s +	:	34.7		+	Tolerance		4.0
Shutoff solenoid Volt	•	12	•	1	cm3/1000 str. +- Check tolerance	•	1.0
1000	•	, -		+	cm3/1000s. +-	:	2.2
Rated speed rpm	:	2100		+	Shutoff solenoid		40
Aneroid pressure hPa		750		1	Volt	:	12
Overflow quantity	,	100		I	Rated speed rpm	:	450
ccm/10s	:	97.2		+	Del. quantity		
Tolerance +		41.6		İ	cm3/1000 strokes Tolerance	:	40.2
CCIII/ IUS	•	41.0		Ţ	cm3/1000 str. +	:	3.0
Check tolerance				+	Check tolerance		
ccm/10s +	:	55.5		†	cm3/1000s. +- Shutoff solenoid	:	5.5
Shutoff solenoid Volt	:	12		Į	Volt	:	12
				+			4.070
DELIVERY AND BREA	KAWA'	Y CHARAC	TERISTIC	†	Rated speed rpm	•	1250
	KAWA	Y CHARAC 2600	TERISTIC	+	Rated speed rpm Aneroid pressure hPa	:	1250 750
Rated speed rpm Aneroid pressure		2600	TERISTIC	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity	:	750
Rated speed rpm Aneroid pressure hPa			TERISTIC	+ + + + + + + + + + + + + + + + + + + +	Aneroid pressure hPa Del. quantity cm3/1000 strokes	:	
Rated speed rpm Aneroid pressure		2600	TERISTIC	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity	:	750
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	:	2690 750 11.0	TERISTIC	++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	•	750 50.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	:	2600 750	TERISTIC	+++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	•	750 50.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	•	2690 750 11.0	TERISTIC	++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	•	750 50.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid		2600 750 11.0 2.0 4.0	TERISTIC	++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	•	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-		2600 750 11.0 2.0	TERISTIC	++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm	•	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm		2600 750 11.0 2.0 4.0	TERISTIC	<del>+++++++++++++++++++++++++++++++++++++</del>	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa	•	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure		2600 750 11.0 2.0 4.0 12	TERISTIC	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa		2600 750 11.0 2.0 4.0	TERISTIC	<del>+++++++++++++++++++++++++++++++++++++</del>	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +-	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes		2600 750 11.0 2.0 4.0 12	TERISTIC	+++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	:	750 50.5 0.5 2.2 12 700
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance		2600 750 11.0 2.0 4.0 12 2400 750 37.5	TERISTIC	<del>+++++++++++++++++++++++++++++++++++++</del>	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes		2600 750 11.0 2.0 4.0 12 2400 750	TERISTIC	<del>+++++++++++++++++++++++++++++++++++++</del>	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-		2600 750 11.0 2.0 4.0 12 2400 750 37.5	TERISTIC	<del>+++++++++++++++++++++++++++++++++++++</del>	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance cm3/1000s. +-	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	TERISTIC	++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt		750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	TERISTIC	++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure	: : : : : : : : : : : : : : : : : : : :	750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5 12
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	TERISTIC	++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Aneroid pressure hPa		750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	TERISTIC	++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure		750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5 12

Tolerance	↓         Del. quantity
cm3/1000 str. +: 1.0	cm3/1000 strokes : -2.0
Check tolerance	Tolerance
cm3/1000s. +-: 1.0	- cm3/1000 str. +-: 0.1
Shutoff solenoid	Check tolerance
Volt : 12 -	+ cm3/1000s. + : 0.1
•	+ Shutoff solenoid
•	+ Volt : 12
	+
ELECTR. SHUTOFF	→ DELIVERY DIFFERENCE
CONTROL LEVER, IDLE STOP	
	Rated speed rpm : 1250
Rated speed rpm : 450	Del. quantity
Del. quantity	cm3/1000 strokes : 1.5
cm3/1000 strokes : 1.5	Tolerance
Tolerance	cm3/1000 str. +: 1.5
cm3/1000 str. +: 1.5	Shutoff solenoid
Check tolerance -	+ Volt : 12
cm3/1000s. + : 1.5	+
Spread	+ PRESSURE DIFFERENCE
cm3/1000 strokes : 5.0	1
The second of th	Rated speed rpm : 1250
FULL-LOAD STOP CONTROL LEVER	- Supply pomp
FOTE-TOND STOP CONTROL MEVER	
	pressure bar : -1.2
Rated speed rpm : 450	Tolerance bar +: 0.2
Del. quantity	- Shutoff solenoid
cm3/1000 strokes : 1.5	+ Volt : 12
Tolerance	+
cm3/1000 str. + : 1.5	TIMING-DEVICE TRAVEL DIFFERENCE
Spread	
cm3/1000 strokes : 5.0	Rated speed rpm : 1250
Check tolerance	Tolerance mm +: 0.2
	Check
Spread	tolerance mm +-: 0.6
cm3/1000 strokes : 5.0	Shutoff solenoid
•	+ Volt : 12
•	+
•	+ EXHAUST-GAS RECIRCULATION
	+
	Rated speed rpm : 1000
CHECKING LOAD-DEPENDENT	Aneroid pressure
START OF DELIVERY	hPa : 750
ALMINI AL APPLACIAL	Del. quantity
NELTHERY ATERCENIAS	T DEC. Qualitity
DELIVERY DIFFERENCE	cm3/1000 strokes : 35.0
4070	+ Tolerance
Rated speed rpm : 1250	+ cm3/1000 str. + : 1.0
Del. quantity	+ Check tolerance
cm3/1000 strokes : -9.0	+  cm3/1000s. + + : 3.0
Tolerance	+ Shutoff solenoid
cm3/1000 str. +: 2.0	+ Volt : 12
Check tolerance	
	<del></del>
	+ START TRANSITION
cm3/1000s. +: 4.0	START TRANSITION
cm3/1000s. +: 4.0 ·· Shutoff solenoid	+
cm3/1000s. +: 4.0	Rated speed rpm : 380
cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12	Rated speed rpm : 380 Del. quantity
cm3/1000s. +: 4.0 ·· Shutoff solenoid	Rated speed rpm : 380 Del. quantity cm3/1000 strokes : 41.0
cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE	Rated speed rpm : 380 Del. quantity cm3/1000 strokes : 41.0 Tolerance
cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12	Rated speed rpm : 380 Del. quantity cm3/1000 strokes : 41.0

Shutoff solenoid

Volt : 12

Rated speed rpm : 180

Del. quantity

cm3/1000 strokes : 45.0

Tolerance

cm3/1000 str. + : 10.0

Shutoff solenoid

Volt : 12

## ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : +0,1
Dimension KF mm : 6,0
Tolerance mm + : +0,2
Dimension MS mm : 1,2
Tolerance mm + : +0,2

MICROSWITCH

SET

mm : 0,8...3,0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.08.95 Edition Test oil : ISO 4113

: 0 460 494 414 Part no. Pump designation: VE4/9F2300R597-5

Customer-spec. information

Customer : VW

: 1,9 L UD A3 / B4 Motor

Power KW 55.0

## TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance \*C + :

Overflow

restriction mm :

Inlet press. bar : 0.35 Tolerance bar + :

Test nozzle holde

: 1 688 901 000 assembly

Opening pressure

bar Tolerance bar + :

Test lines : 1 680 750 000

Outside diameter : 6.00

2.00 x inside diameter : x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250 Aneroid pressure 750 hPa Setting mm 4.4 Tolerance mm + : 0.1 Shutoff solenoid 12 Volt

## SUPPLY PUMP PRESSURE

Rated speed rpm 1250 Aneroid pressure 750 hPa Supply pomp pressure bar 5.7 Tolerance bar + : 0.3 Shutoff solenoid Volt 12

## FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250 Aneroid pressure 750 hPa Del. quantity cm3/1000 strokes : 50.5 Tolerance cm3/1090 str. +-:Spread cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. 3.0 Shutoff solenoid Volt 12

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance

cm3/1000s.3.0

## HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

550 Rated speed rpm : Del. quantity cm3/1000 strokes : 7.5 Tolerance cm3/1000 str. + :0.5Shutoff solenoid Volt 12

## IDLE DELIVERY

Rated speed rpm : 450 Del. quantity cm3/1000 strokes : 17.0

Talananaa		t .	Talananaa	
Tolerance cm3/1000 str. +-		1.0	Tolerance cm3/1000 str. +-:	0.1
Spread	•	1.0	Shutoff solenoid	0.1
cm3/1000 strokes	•	2.0		12
	•	2.0	Volt :	12
Shutoff solenoid		12	TIMING DEVICE TOAVEL	PIEEEDENCE
Volt	•	12 +	TIMING-DEVICE TRAVEL	DIFFERENCE
HIGH IDLE SETTING		<b>T</b>	Rated speed rpm :	1250
HIGH INCE SELLTING		Ţ		1230
Estad casad mas	: 50	n T	Del. quantity cm3/1000 strokes :	-2.0
Rated speed rpm	ں .	1		-2.0
Del. quantity	: 1	7.0	Tolerance	0.1
cm3/1000 strokes	• 1	··· †	cm3/1000 str. +:	U. I
Tolerance		1.0	Shutoff solenoid	43
cm3/1000 str. +- Shutoff solenoid	•	1.0	Volt :	12
		12 I		
Volt	•	. †	INJECTION-PUMP TEST	COUCTETCATIONS
PULL LOAN SPEEN DE	ECULATIO	A1	TWIECT TOWN 1621	SECTLICALIONS
FULL-LOAD SPEED RI	EGOLA LTO	†	TIMING DEVICE CHARAC	TEDICTIC
Dated aread non	. 240	n T	ITINING DEVICE CHARAC	IEKT911C
Rated speed rpm Pressure hPa	: 260	750	Estad assad are	2100
	÷	יטכי †	Rated speed rpm :	2100
Del. quantity cm3/1000 strokes	. 1	1.0	Aneroid pressure hPa :	750
	• •	1.0	iira :	750
Tolerance cm3/1000 str. +-	•	2.0	SV travel mm :	8.3
Shutoff solenoid	•	z.u †	Tolerance mm +:	0.3
		12	Check	0.5
Volt	•	' <sup>2</sup> T	tolerance mm +-:	0.8
		T	Shutoff solenoid	0.0
SET GRADUATED STA	DTTNC DE	TVED		12
		TTAEKI	Volt :	12
CONTROL LEVER, IN	re alab	7	Dated aread non	750
Datad aread non	: 10	m †	Rated speed rpm : Aneroid pressure	750
Rated speed rpm	. 10	ν Τ	hPa :	750
Del. quantity cm3/1000 strokes	• //	o.o I	iira :	750
Tolerance	. 4	7	SV travel mm :	1.8
cm3/1000 str. +-		3.0	Tolerance mm +:	0.3
	•	7.0 T	Check	0.5
Shutoff solenoid		12 I	tolerance mm + :	0.8
Volt	•	12	Shutoff solenoid	0.0
		T	Volt :	12
LOAD-DEPENDENT STA	ADT OF S	EL TUEDY	<b>V</b> OCC .	12
SETTING	MRT OF D	I	SUPPLY PUMP PRESSURE	CHADACTEDISTIC
SELLTING		I	SOFFET FORF FRESSORE	. CHARACIERISTIC
DELIVERY DIFFEREN	CE	$\mathbf{I}$	Rated speed rpm :	2100
DELTACK! DILLEVEN	<b></b>	$\perp$	Aneroid pressure	2100
Rated speed rpm	• 125	$\Gamma$	hPa :	750
Del. quantity	• 160	$\Gamma$	Supply pomp	750
cm3/1000 strokes		5.5	pressure bar :	7.7
Tolerance	•	1	Tolerance bar +-:	0.3
cm3/1000 str. +	•	1.0	Shutoff solenoid	0.0
Shutoff solenoid	•	1	Volt :	12
Volt	•	12		
70,0	•	1	Rated speed rpm :	750
PRESSURE DIFFEREN	CF	1	Aneroid pressure	
	- <del>-</del>	1	hPa :	750
Rated speed rpm	: 125	ro 1	Supply pomp	· • •
Del. quantity	- 1	-	pressure bar :	4.6
cm3/1000 strokes	: -	0.2	Tolerance bar +-:	0.3
THE TOUS OF CRES	•		receptantine with the	
		Т		

Shutoff solenoid			+	Del. quantity	
Volt	:	12	+	cm3/1000 strokes :	1.5
AUPREL OUL AUARTETY			+	Tolerance	4 5
OVERFLOW QUANTITY			Ť	cm3/1000 str. +-: Check tolerance	1.5
Rated speed rpm	•	1250	I	cm3/1000s. +-:	1.5
Aneroid pressure	•	1230	1	Shutoff solenoid	1.2
hPa	:	750	+	Volt :	12
Overflow quantity			+		
ccm/10s	:	77.7	+	Rated speed rpm :	2100
Tolerance ccm/10s +-	•	22.2	Ī	Aneroid pressure hPa :	750
	•	66.6	I	Del. quantity	100
Check tolerance			+	cm3/1000 strokes :	43.0
ccm/10s +	:	34.7	+	Tolerance	
Shutoff solenoid		42	. 🕇	cm3/1000 str. +-:	1.0
Volt	:	12	Ť	Check tolerance cm3/1000s. +:	2.2
Rated speed rpm		2100	I	Shutoff solenoid	۷.۷
Aneroid pressure	•	2100	I	Volt :	12
hPa	:	750	+		
Overflow quantity			+	Rated speed rpm :	450
ccm/10s	:	97.2	†	Del. quantity	/0.2
Tolerance ccm/10s +		41.6	Ī	cm3/1000 strokes : Tolerance	40.2
CCM/ 105	•	41.0	I	cm3/1000 str. +:	3.0
Check tolerance			+	Check tolerance	
ccm/10s +	:	55.5	+	cm3/1000s. +-:	5.5
Shutoff solenoid		40	+	Shutoff solenoid	40
Volt	:	12	†	Volt :	12
DELIVERY AND BREAK	AWA"	Y CHARACTERISTIC	1	Rated speed rom :	1250
DELIVERY AND BREAK	(AWA)	Y CHARACTERISTIC	‡	Rated speed rpm : Aneroid pressure	1250
Rated speed rpm	(AWA)	Y CHARACTERISTIC 2600	+	Aneroid pressure hPa :	1250 750
Rated speed rpm Aneroid pressure		2600	†	Aneroid pressure hPa : Del. quantity	750
Rated speed rpm Aneroid pressure hPa			† † † †	Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	
Rated speed rpm Aneroid pressure hPa Del. quantity	:	2600 750	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	750 50.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	:	2600	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + :	750
Rated speed rpm Aneroid pressure hPa Del. quantity	•	2600 750	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + :	750 50.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	:	2600 750 11.0 2.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	:	2600 750 11.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + :	750 50.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid	:	2600 750 11.0 2.0 4.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	:	2600 750 11.0 2.0	++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt : Rated speed rpm :	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid	:	2600 750 11.0 2.0 4.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :	750 50.5 0.5 2.2
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt Rated speed rpm Aneroid pressure	•	2600 750 11.0 2.0 4.0 12 2400	++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt : Rated speed rpm : Aneroid pressure hPa : Tolerance	750 50.5 0.5 2.2 12 700 180
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa	•	2600 750 11.0 2.0 4.0	+++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + :	750 50.5 0.5 2.2 12 700
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750	+++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance	750 50.5 0.5 2.2 12 700 180 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400	+++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + :	750 50.5 0.5 2.2 12 700 180
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750	+++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + :	750 50.5 0.5 2.2 12 700 180 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Shutoff solenoid	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. +	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750 37.5	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + :	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :	750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. +	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm :	750 50.5 0.5 2.2 12 700 180 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000s. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid	: : : : : : : : : : : : : : : : : : : :	2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :	750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0 12 2750	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance	750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5 12 700 300
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  Rated speed rpm		2600 750 11.0 2.0 4.0 12 2400 750 37.5 5.0 6.0	+++++++++++++++++++++++++++++++++++++++	Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa :	750 50.5 0.5 2.2 12 700 180 0.5 0.5 0.5 12

Tolerance	+ Del. quantity
cm3/1000 str. + : 1.0	+ cm3/1000 strokes : -2.0
Check tolerance	+ Tolerance
cm3/1000s. +-: 1.0	+  cm3/1000  str. + : 0.1
Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1000s. +-: 0.1
1000	+ Shutoff solenoid
	Volt : 12
	I vocc . 12
ELECTR. SHUTOFF	DELIVERY DIFFERENCE
CONTROL LEVER, IDLE STOP	T DECIVERY DITTERCINGE
CONTROL LEVERY IVEL STOP	Rated speed rpm : 1250
Rated speed rpm : 450	Del. quantity
Del. quantity	cm3/1000 strokes : 1.5
cm3/1000 strokes : 1.5	Tolerance
Tolerance	+ cm3/10C0 str. + : 1.5
	+ Check tolerance
Check tolerance	+ cm3/1000s. + : 1.5
cm3/1000s. + : 1.5	+ Shutoff solenoid
Spread	+ Volt : 12
cm3/1000 strokes : 5.0	DDFCCUDE ATERROUSE
FULL LOAD STOP SOUTHOU LEVED	+ PRESSURE DIFFERENCE
FULL-LOAD STOP CONTROL LEVER	T Booked amond annu 1250
Dehed aread was 150	Rated speed rpm : 1250
Rated speed rpm : 450	+ Supply pomp
Del. quantity	+ pressure bar : -1.2
cm3/1000 strokes : 1.5	+ Tolerance bar + : 0.2
Tolerance	+ Shutoff solenoid
cm3/1000 str. + : 1.5	+ Volt : 12
Spread	†
cm3/1000 strokes : 5.0	+ TIMING-DEVICE TRAVEL DIFFERENCE
Check tolerance	+
cm3/1000s. +-: 1.5	+ Rated speed rpm : 1250
Spread	+ Tolerance mm +: 0.2
cm3/1000 strokes : 5.0	+ Check
	+ tolerance mm + : 0.6
	+ Shutoff solenoid
	+ Volt : 12
	+
	+ EXHAUST-GAS RECIRCULATION
CHECKING LOAD-DEPENDENT	+
START OF DELIVERY	+ Rated speed rpm : 1000
	+ Aneroid pressure
DELIVERY DIFFERENCE	+ hPa : 750
	+ Del. quantity
Rated speed rpm : 1250	+ cm3/1000 strokes : 35.0
Del. quantity	+ Tolerance
cm3/1000 strokes : -9.0	+ cm3/1000 str. +-: 1.0
Tolerance	+ Check tolerance
cm3/1000 str. +-: 2.0	+  cm3/1000s. +-: 3.0
Check tolerance	+ Shutoff solenoid
cm3/1000s. + : 4.0	† Volt : 12
Shutoff solenoid	+
Volt : 12	+ START TRANSITION
	+
TIMING-DEVICE TRAVEL DIFFERENCE	+ Rated speed rpm : 380
	+ Del. quantity
Rated speed rpm : 1250	+ cm3/1000 strokes : 41.0
	r .

Tolerance

cm3/1000 str. +-:10.0

Shutoff solenoid

12 Volt

Rated speed rpm : 180

Del. quantity cm3/1000 strokes : 45.0

Tolerance

cm3/1000 str. +-: 10.0

Shutoff solenoid

12 Volt

## ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm Tolerance mm + : +-0,1 Dimension KF mm : 6,0 Toterance mm +-: +-0,2 : 1,2 Dimension MS mm Tolerance mm +-: +-0,2

CONTROL LEVER POSITION SET

Control lever

: 37,6..41,6 position YA mm

Control lever

: 49,9..53,3 position YB mm

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96 Yest oil : ISO 4113

Part no. : 0 460 494 404 Pump designation : VE4/9F2150R637-1

Customer—spec. information

Customer : NISSAN-MISA

Motor : GX-3 Power KW : 53.0

## TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test nozzle holde

assembly : 1 688 901 022

Opening pressure

bar : 130 Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 1200

Setting mm : 3.2
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200 Supply pomp

pressure bar : 5.9 Tolerance bar +: 0.3 Shutoff solenoid

Volt : 12

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

## IDLE SETTING

Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 8.5 Tolerance cm3/1000 str. +-: 2.0 Shutoff solenoid 12 Volt Spread cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. 3.0

### FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

## STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity	+ Shutoff solenoid
cm3/1000 strokes : 60.0	+ Volt : 12
Tolerance	1
cm3/1000 str. +: 15.0	+ Rated speed rpm : 600
Shutoff solenoid	+ Overflow quantity
Volt : 12	
	+ Tolerance
	+ ccm/10s $+$ : 22.2
	+
	+ Check tolerance
	+ ccm/10s +-: 22.2
INJECTION-PUMP TEST SPECIFICATIONS	+ Shutoff solenoid
	+ Volt : 12
TIMING DEVICE CHARACTERISTIC	
THE STATES SHAHASIENTS	+ DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 2150	T DECIVER AND DREADANT CHARACTERISTIC
Rated speed rpm : 2150	T Bahad anadana a 2500
	+ Rated speed rpm : 2500
SV travel mm : 9.2	+ Del. quantity
Tolerance mm + : 0.4	+ cm3/1000 strokes : 15.0
Check	+ Tolerance
tolerance mm +: 0.7	+ cm3/1000 str. $+$ : 3.0
Shutoff solenoid	+ Check tolerance
Volt : 12	+  cm3/1000s. + : 4.5
1010	+ Shutoff solenoid
Rated speed rpm : 900	+ Volt : 12
Rated Speed (pill . 700	T voit . 12
all the end on the same of a	Potent amend and 2752
SV travel mm : 1.2	+ Rated speed rpm : 2350
Tolerance mm + : 0.4	+ Del. quantity
Check	+ cm3/1000 strokes : 33.3
tolerance mm +-: 0.7	+ Tolerance
Shutoff solenoid	+ cm3/1000 str. $+$ : 4.0
Volt : 12	+ Check tolerance
	+ cm3/1000s. + : 5.5
SUPPLY PUMP PRESSURE CHARACTERISTIC	+ Shutoff solenoid
SOFFET FORE ENERGONE CHARACTERISTIC	Volt : 12
Rated speed rpm : 2150	7 0000
	T Poted and and 2700
Supply pomp	+ Rated speed rpm : 2700
pressure bar : 6.7	+ Del. quantity
Tolerance bar +-: 0.3	+ cm3/1000 strokes : 2.5
Shutoff solenoid	+ Tolerance
Volt : 12	+ cm3/1000 str. +-: 2.5
	+ Check tolerance
Rated speed rpm : 900	+ cm3/1000s. +-: 2.5
Supply pomp	+ Shutoff solenoid
pressure bar : 5.0	+ Volt : 12
Tolerance bar +-: 0.3	1
	Rated speed rpm : 900
Shutoff solenoid	
Volt : 12	+ Del. quantity
	+ cm3/1000 strokes : 42.2
OVERFLOW QUANTITY	+ Tolerance
	+ cm3/1000 str. $+$ : 1.5
Rated speed rpm : 2150	+ Check tolerance
Overflow quantity	+ cm3/1000s. $+$ : 2.5
ccm/10s : 97.2	+ Shutoff solenoid
Tolerance	+ Volt : 12
ccm/10s +-: 41.6	1
CCIII/ TUS : 41.0	T Poted speed now 4200
Alexandra A. Lamanara	+ Rated speed rpm : 1200
Check tolerance	+ Del. quantity
ccm/10s +-: 41.6	+ cm3/1000 strokes : 43.2
	+

Tolerance	+ Spread
cm3/1000 str. + ₹ 1.5	+ cm3/1000 strokes : 5.0
Check tolerance	+ Check tolerance
cm3/1000s. += ; 2.5	+ cm3/1000s. +-: 1.5
Shutoff solenoid	+ Spread
Volt : 12	+ cm3/1000 strokes : 5.0
	†
Rated speed rpm : 1800	+ IDLE DELIVERY
Del. quantity	+
cm3/1000 strokes : 44.3	+ Rated speed rpm : 800
Tolerance	+ Del. quantity
cm3/1000 str. +-: 1.5	+ cm3/1000 strokes : 2.5
Check tolerance	+ Tolerance
cm3/1000s. + : 2.5	+ cm3/1000 str. +: 2.5
Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1600s. $+$ : 2.5
	+ Shutoff solenoid
Rated speed rpm : 600	+ Volt : 12
Del. quantity	
cm3/1000 strokes : 41.0	Rated speed rpm : 500
Tolerance	
	+ Del. quantity
cm3/1000 str. + : 1.5	+ cm3/1000 strokes : 1.5
Check tolerance	+ Tolerance
cm3/1000s. +-: 2.5	+ cm3/1000 str. +-: 1.5
Shutoff solenoid	+ Check tolerance
Vol.t : 12	+ cm3/1000s. $+$ : 1.5
	+ Shutoff solenoid
Rated speed rpm : 2150	+ Volt : 12
Del. quantity	1
cm3/1000 strokes : 44.5	T
	Ť
Tolerance	†
cm3/1000 str. +-: 0.5	+
Check tolerance	+
cm3/1000s. + : 1.3	+
Shutoff solenoid	+ START TRANSITION
Volt : 12	
1011	Rated speed rpm : 400
	Del. quantity
	+ cm3/1000 strokes : 45.0
ELECTO CULTAGE	
ELECTR. SHUTOFF	+ Tolerance
CONTROL LEVER, IDLE STOP	+ cm3/1000 str. $+$ : 20.0
	+ Shutoff solenoid
Rated speed rpm : 375	+ Volt : 12
Del. quantity	+
cm3/1000 strokes : 1.5	+
Tolerance	Rated speed rpm : 270
cm3/1000 str. + : 1.5	+ Del. quantity
Check tolerance	+ cm3/1000 strokes : 70.0
	Tolerance
Spread	+ cm3/1000 str. $+$ : 20.0
cm3/1000 strokes : 5.0	+ Shutoff solenoid
	+ Volt : 12
FULL-LOAD STOP CONTROL LEVER	+
	+
Rated speed rpm : 375	ASSEMBLY AND ADJUSTMENT DIMENSIONS
Del. quantity	+
cm3/1000 strokes : 1.5	Dimension K mm : 3,3
	+ Tolerance mm + : +-0,1
Tolerance	
cm3/1000 str. +-: 1.5	Dimension KF mm : 5,4
	+ Tolerance mm + : +-0,2

Dimension MS mm : 1,2 Tolerance mm + : +-0,2 TLA travel mm : 6,5

CONTROL LEVER POSITION SET

Control lever

position YA mm : 35,1..39,1

Control lever position YB mm : 56,9..68,1

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 06,09,96 Edition Test oil : ISO 4113

: 0 460 426 152 Part no. Pump designation : VE6/12F1250R381

Customer-spec. information Customer : CDC

: 6BT- 5.9 IND. Motor

### TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C Tolerance °C -:

Overflow

restriction mm 0.55

Inlet press. bar : 0.35 Tolerance bar +-: 0.05

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

bar 250 Tolerance bar + :

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm +: 0.02(0.06)

Outlet |

Prestroke

(as of UT) mm : 0,3 Tolerance mm + : 0,02

Check

tolerance mm +-: (0.04)

#### INJECTION PUMP SETTING VALUES

### TIMING DEVICE TRAVEL

Rated speed rpm : 750

Setting mm 3.6 Tolerance mm + : 0.2 Shutoff solenoid Volt 12

## SUPPLY PUMP PRESSURE

Rated speed rpm : 750 Supply pomp pressure bar 3.8 Tolerance bar +-: 0.3 Shutoff solenoid 12 Volt

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1100 Del. quantity

cm3/1000 strokes : 64.0 Tolerance

cm3/1000 str. +-: 0.5 Spread 4.5

cm3/1000 strokes :

Shutoff solenoid Volt 12

#### IDLE SETTING

Rated speed rpm : 345 Del. quantity

cm3/1000 strokes : 12.0

Tolerance

cm3/1000 str. +-: 3.0 Shutoff solenoid

12

Volt Spread

7.0 cm3/1000 strokes :

Check tolerance

cm3/1000s. 7.0

-	+ Shutoff solenoid
FULL-LOAD SPEED REGULATION	Volt : 12
Rated speed rpm : 1320 - Del. quantity -	OVERFLOW QUANTITY
cm3/1000 strokes : 47.5	Rated speed rpm : 1250 Overflow quantity
cm3/1000 str. + : 3.0 - Shutoff solenoid	ccm/10s : 77.7 Tolerance
Volt : 12	ccm/10s +: 27.7
STARTING FUEL DELIVERY	Check tolerance
Rated speed rpm : 100 - Del. quantity -	Shutoff solenoid Volt : 12
cm3/1000 strokes : 90.0 -	Rated speed rpm : 500
cm3/1000 str. + : 30.0 - Shutoff solenoid	Overflow quantity com/10s 52,7
Volt : 12	Tolerance + : 16.6
	Check tolerance
	ccm/10s +: 16.6 Shutoff solenoid
INJECTION—PUMP TEST SPECIFICATIONS	Volt : 12
TIMING DEVICE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 1100	Rated speed rpm : 1320 Del. quantity
SV travel mm : 5.8 - Tolerance mm + : 0.4 -	cm3/1000 strokes : 47.5
Check - tolerance mm + : 0.7	cm3/1000 str. + : 3.0 Check tolerance
Shutoff solenoid - Volt : 12 -	cm3/1000s. +: 8.0 Shutoff solenoid
Rated speed rpm : 500	Volt : 12
SV travel mm : 1.9	Rated speed rpm : 1340  Del. quantity
Tolerance mm + : 0.4 - Check -	cm3/1000 strokes : 35.0 Check tolerance
tolerance mm + : 0.7 - Shutoff solenoid	cm3/1000s. + : 20.0 Shutoff solenoid
Volt : 12	Volt : 12
SUPPLY PUMP PRESSURE CHARACTERISTIC	Rated speed rpm : 1450  Del. quantity
Rated speed rpm : 1100 - Supply pomp	cm3/1000 strokes : 1.5
pressure bar : 5.2 Tolerance bar + : 0.3	- cm3/1000 str. +-: 1.5 - Check tolerance
Shutoff solenoid Volt : 12	cm3/1000s. +: 1.5 Shutoff solenoid
Rated speed rpm : 500	: 12
Supply pomp - pressure bar : 2.7	Rated speed rpm : 1250 Del. quantity
Tolerance bar + : 0.3	cm3/1000 strokes : 62.5

Toler <b>a</b> nce		+ Check tolerance
cm3/1000 str. +-:	1.5	+ cm3/1000s. $+-$ : 1.5
Check tolerance		
cm3/1000s. +-:	3.0	FULL-LOAD STOP CONTROL LEVER
	5.0	T FULL-LUND STOP CONTROL LEVER
Shutoff solenoid	4.5	†
Volt :	12	+ Rated speed rpm : 345
		→ Del. quantity
Rated speed rpm :	750	+ cm3/1000 strokes : 1.5
Del. quantity		+ Tolerance
cm3/1000 strokes :	66.5	+ cm3/1000 str. $+$ : 1.5
Tolerance	00.5	Check tolerance
	2.5	
cm3/1000 str. +:	2.5	+ cm3/1000s. $+$ : 1.5
Check tolerance		†
cm3/1000s. +-:	4.0	+ IDLE DELIVERY
Shutoff solenoid		+
Volt :	12	+ Rated speed rpm : 500
		+ Del. quantity
Rated speed rpm :	500	1 cm <sup>2</sup> /1000 strokes · 2.0
Del. quantity	500	Tolerance
	11 5	
cm3/1000 strokes :	64.5	Tolerance : 2.0 check tolerance cm3/1000s. +: 2.0
Tolerance		+ Check tolerance
cm3/1000 str. + :	4.0	+ cm3/1000s. $+-$ : 2.0
Check tolerance		+ Shutoff solenoid
cm3/1000s. +-:	6.0	+ Volt : 12
Shutoff solenoid		+
Volt :	12	+
		1
Rated speed rpm :	1100	1
Del. quantity	,,,,,	1
cm3/1000 strokes :	64.0	$\mathbf{I}$
	04.0	T CTART TRANSCITION
Tolerance	0.5	+ START TRANSITION
cm3/1000 str. +-:	0.5	†
Check tolerance		+ Rated speed rpm : 450
cm3/1000s. +-:	3.0	+ Del. quantity
Shutoff sclenoid		+ cm3/1000 strokes : 50.0
Volt :	12	† Tolerance
		+ cm3/1000 str. +-: 25.0
		+ Shutoff solenoid
MECHANICAL SHUTOFF		→ Volt : 12
		1
Rated speed rpm :	1250	1
Del. quantity		+ Rated speed rpm : 270
cm3/1000 strokes :	1.5	Del. quantity
Tolerance	100	cm3/1000 strokes : 75.0
	1 5	
cm3/1000 str. +-:	1.5	+ Tolerance
Check tolerance	4 -	t cm3/1000 str. +: 25.0
cm3/1000s. +-:	1.5	+ Shutoff solenoid
Shutoff solenoid		† Volt : 12
Volt :	12	+
		ASSEMBLY AND ADJUSTMENT DIMENSIONS
ELECTR. SHUTOFF		+
CONTROL LEVER, IDLE	STOP	→ Dimension KF mm : 5,2
	<del>-</del> -	+ Tolerance mm + : 0,2
Rated speed rpm :	345	Dimension MS mm : 1,2
Del. quantity	<del>- 1-</del>	Tolerance mm +: 0,1
cm3/1000 strokes :	1.5	SVS dimension mm : 3,6
	1.7	T 043 wither 1011 mill 1 370
Tolerance	1 E	<b>T</b>
cm3/1000 str. +-:	1.5	†
		<b>+</b>

CONTROL LEVER POSITION SET

Control lever

position YA mm : 34,8..38,8

Control lever

position Y8 mm : 40,7..46,3

## Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96 Test oil : ISO 4113

Part no. : 0 460 426 153 Pump designation : VE6/12F1100R381-1

Customer-spec. information Customer : CDC

Motor : 6BT- 5.9 IND.

## TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +-: 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 027

Opening pressure

bar : 250 Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

## REMARKS

## BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm + : 0.02(0.06)

Outlet : D

#### Prestroke

(as of UT) mm : 0,3 Tolerance mm + : 0,02

Check

tolerance mm +-:(0,04)

## INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 750

Setting mm : 3.6 Tolerance mm +-: 0.2

## SUPPLY PUMP PRESSURE

Rated speed rpm : 750

Supply pomp

pressure bar : 3.8 Tolerance bar +: 0.3

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900

Del. quantity

cm3/1000 strokes : 72.0

Tolerance

cm3/1000 str. +-: 0.5

Spread

cm3/1000 strokes : 4.5

### IDLE SETTING

Rated speed rpm : 375

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 str. +-: 3.0

Spread

cm3/1000 strokes : 7.0

Check tolerance

cm3/1000s. : 7.0

## FULL-LOAD SPEED REGULATION

Rated speed rpm : 1140

Del. quantity

cm3/1000 strokes : 56.0

Tolerance

cm3/1000 str. + : 3.0

4	_
STARTING FUEL DELIVERY	- Check tolerance
Rated speed rpm : 100	- ccm/10s +- : 16.6
Del. quantity	- DELIVERY AND BREAKAWAY CHARACTERISTIC
cm3/1000 strokes : 90.0 -	Rated speed rpm : 1140
cm3/1000 str. +-: 30.0	- Del. quantity - cm3/1000 strokes : 56.0
] ]	- Tolerance - cm3/1000 str. +-: 3.0 - Check tolerance
INJECTION—PUMP TEST SPECIFICATIONS -	- cm3/1000s. +-: 6.0
	Rated speed rpm : 1160
TIMING DEVICE CHARACTERISTIC -	Del. quantity cm3/1000 strokes : 35.0
Rated speed rpm : 1100	- Tolerance - cm3/1000 str. +-: 15.0
SV travel mm : 5.6 Tolerance mm + : 0.4	Check tolerance - cm3/1000s. +-: 15.0
Check tolerance mm +-: 0.7	Rated speed rpm : 1220
Rated speed rpm : 500	- 'Del, quantity - ଲୀ3/1000 strokes : 1.5 - Tolerance
SV travel mm : 1.9 Tolerance mm +: 0.4	- cm3/1000 str. + : 1.5 - Check tolerance
Check -	- cm3/1000s. +-: 1.5
tolerance mm +-: 0.7	- - Rafed speed rpm : 1100
SUPPLY PUMP PRESSURE CHARACTERISTIC	- Del. quantity
Rated speed rpm : 1100	cm3/1000 strokes : 68.5 Tolerance
Supply pamp	- cm3/1000 str. + : 1.5
pressure bar : 5.1 Tolerance bar +-: 0.3	- Check tolerance - cm3/1000s. +-: 3.0
Rated speed rpm : 500 - Supply pomp -	- Rated speed rpm : 750 - Del. quantity
pressure bar : 2.7	- cm3/1000 strokes : 72.5
	- Tolerance - cm3/1002 str. +-: 2.0 - Check talerance
OVERFLOW QUANTITY	- cm3/1000s. +-: 4.0
Rated speed rpm : 1100 - Overflow quantity -	- Rated speed rpm : 500
ccm/10s : 69.4 - Tolerance -	- Del. quantity - cm3/1000 strokes : 54.0
ccm/10s + : 27.7	Tolerance
Check tolerance	- cm3/1000 str. + : 4.0 - Check tolerance
ccm/10s + : 27.7	cm3/1000s. +-: 6.0
Rated speed rpm : 500 - Overflow quantity -	- Rated speed rom: ; 900 - Del. quantity
ccm/10s : 50.0	- cm3/1000 strokes : 72.0

Tolerance

ccm/10s

+: 16.6

Check tolerance cm3/1000s. +-	• •	3.0	
MECHANICAL SHUTOF	F		
Rated speed rpm	:	1100	
Del. quantity cm3/1000 strokes	•	1.5	
Tolerance			
cm3/1000 str. +- Check tolerance	• ;	1.5	
cm3/1000s. +-	:	1.5	
ELECTR. SHUTOFF CONTROL LEVER, ID	LE S	<b>БТОР</b>	
Rated speed rpm	:	375	
Del. quantity cm3/1000 strokes	:	1.5	
Tolerance cm3/1000 str. +-	. :	1.5	
Check tolerance		1.5	
cm3/1000s. +- Shutoff solenoid		1.5	
Volt	:	24	
FULL-LOAD STOP CO	NTRO	L LEVER	
Rated speed rpm Del. quantity	:	375	
cm3/1000 strokes	:	1.5	
Tolerance cm3/1000 str. +	. ,	1.5	
Check tolerance			
cm3/1000s. +- Shutoff solenoid	• :	1.5	
Volt	:	24	
IDLE DELIVERY			
Rated speed rpm	:	450	
Del. quantity cm3/1000 strokes	:	2.0	
Tolerarice		2 N	
cm3/1000 str. +- Check tolerance	•	2.0	
cm3/1000s. +-	• :	2.0	
START TRANSITION			
Rated speed rpm	:	240	
Del. quantity cm3/1000 strokes	:	35.0	
1000 301 0KG3	•	23.0	

Tolerance cm3/1000 str. +-: 15.0Rated speed rpm : 130 Del. quantity cm3/1000 strokes : 90.0 Tolerance cm3/1000 str. +-: 30.0ASSEMBLY AND ADJUSTMENT DIMENSIONS Dimension KF mm : 5,2 Tolerance mm + : 0,2 MS1 dimension mm : 1,6 Tolerance mm + : 0.1CONTROL LEVER POSITION SET Control lever position YA mm : 34,8..38,8 Control lever position YB mm : 41,0..46,6

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 06.09.96 Edition : ISO 4113 Test oil

: 0 460 426 154 Part no. Pump designation : VE6/12F1100R331-2

Customer-spec. information : CDC Customer

: 6 BT -5.9 IND. Motor

### TEST BENCH REQUIREMENTS

## Calibrating-oil return

temperature °C

Tolerance °C +-:

Overflow

restriction mm: : 0.55

Inlet press. bar : 0.35 Tolerance bar +-: 0.05

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

250 bar Tolerance bar + :

Test lines : 1 680 750 000

Outside diameter :

x inside diameter: 2.00 x length mm 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm + : 0.02(0.06)

Out Let : D

### Prestroke

(as of UT) mm : 0,3 Tolerance mm +-: 0,02

Check

tolerance mm +-:(0.04)

## INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 750

3.6 Setting mm Tolerance mm + : Shutoff solenoid Volt 24

# SUPPLY PUMP PRESSURE

Rated speed rpm : 750

Supply pomp

pressure bar 3.8 Tolerance bar ←: 0.3

Shutoff solenoid

24 Volt

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

750 Rated speed rpm : Del. quantity

cm3/1000 strokes :

62.5

Tolerance

cm3/1000 str. + : 0.5

Spread

cm3/1000 strokes : 4.5

Shutoff solenoid

Volt 24

# IDLE SETTING

375 Rated speed rpm

Del. quantity

cm3/1000 strokes :

Tolerance

cm3/1000 str. +: 1.0

Shutoff solenoid

Volt 24

Spread

cm3/1000 strokes : 7.0

Check tolerance

cm3/1000s. 7.0

+	Shutoff solenoid
FULL-LOAD SPEED REGUIATION	Volt : 24
Rated speed rpm : 1150 + Del. quantity +	OVERFLOW QUANTITY
cm3/1000 strokes : 42.0	Rated speed rpm : 1100 Overflow quantity
cm3/1000 str. +: 3.6	ccm/10s : 69.4 Tolerance
Volt : 24	ccm/10s + : 27.7
STARTING FUEL DELIVERY	Check tolerance
Rared speed rpm : 700	ccm/10s + : 27.7 Shutoff sclenoid
Del. quantity cm3/1000 strokes : 90.0	Volt : 24
Tolerance + : 25.0 +	Rated speed rpm : 500 Overflow quantity
Shutoff solenoid Volt : 24	ccm/10s : 50.0 Tolerance
1	ccm/10s +: 16.6
1	Check tolerance ccm/10s +-: 16.6
INJECTION—PUMP TEST SPECIFICATIONS	Shutoff solenoid Volt : 24
+	
TIMING DEVICE CHARACTERISTIC +	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 1700 +	Rated speed rpm : 1150 Del. quantity
SV travel mm : 6.0 + Tolerance mm +-: 0.4	cm3/1000 strokes : 42.0 Tolerance
Check tolerance mm +: 0.7	cm3/1000 str. +-: 3.0 Check tolerance
Shutoff solenoid Volt : 24	cm3/1000s. + : 6.0 Shutoff solenoid
+	Volt : 24
Rated speed rpm : 500	Rated speed rpm : 1250
SV travel mm : 7.9 Tolerance mm + : 0.4	Del. quantity cm3/1000 strokes : 1.5
Check tolerance mm + : 0.7	Tolerance cm3/1000 str. +-: 1.5
Shutoff solenoid + Volt : 24	Check tolerance cm3/1000s. + : 1.5
SUPPLY PUMP PRESSURE CHARACTERISTIC +	Shutoff solenoid Volt : 24
Rated speed rpm : 1100	Rated speed rpm : 1170
Supply pomp + pressure bar : 5.1	Del. quantity cm3/1000 strokes : 30.0
Tolerance bar +-: 0.3 Shutoff solenoid	Tolerance cm3/1000 str. +-: 20.0
Volt : 24	Check tolerance
Rated speed rpm : 500	Shutoff solenoid
Supply pomp + compared to the	Volt : 24
Tolerance bar +: 0.3	Rated speed rpm : 1100

Del. quantity	4	- Check tolerance	
cm3/1000 strokes :	60.5	- cm3/1000s. $+$ :	1.5
Tolerance		_	
cm3/1000 str. +-:	1.5	- FULL-LOAD STOP CONTROL	1 EVED
Check tolerance	113	TOLL LOAD OF OF CONTROL	ELVEN
	3.0	Data dana adam .	775
cm3/1000s. +-:	3.0	- Rated speed rpm :	375
Shutoff solenoid	1	- Del. quantity	
Volt :	24	- cm3/1000 strokes :	1.5
	-	- Tolerance	
Rated speed rpm :	900	- cm3/1000 str. + :	1.5
Del. quantity	+	- Check tolerance	
cm3/1000 strokes :	61.5	- cm3/1000s. + - :	1.5
Tolerance			,,,,
cm3/1000 str. +-:	2.0	- IDLE DELIVERY	
Check tolerance	2.0	INCE NECTACK!	
	/ 0	Dated annual man	500
cm3/1000s. +-:	4.0	- Rated speed rpm :	500
Shutoff solenoid	4	- Del. quantity	
Volt :	24	- cm3/1000 strokes :	2.0
	-	- Tolerance	
Rated speed rpm :	500 -	cm3/1000 str. +-:	2.0
Del. quantity	-	- Check tolerance	
cm3/1000 strokes :	57.0	- cm3/1000s. +-:	2.0
Tolerance		- Shutoff solenoid	2.0
cm3/1000 str. +-:	4.0	- Volt :	24
	4.0	· voct	24
Shutoff solenoid	24		
Volt :	24 -		
Rated speed rpm :	750° -	-	
Del. quantity	-	-	
cm3/1000 strokes :	62.5	-	
Tolerance	4	- START TRANSITION	
cm3/1000 str. +:	0.5		
Check tolerance		- Rated speed rpm :	300
cm3/1000s. +-:	3.0	- Del. quentity	300
Shutoff salenaid	3.0	cm3/1000 strokes :	60.0
	24		60.0
Volt :		- Tolerance	40.0
	-	cm3/1000 str. +:	10.0
		- Shutoff solenoid	
MECHANICAL SHUTOFF	-	- Volt :	24
	-	-	
Rated speed rpm :	1100 -	-	
Del. quantity	-	- Rated speed rpm :	130
cm3/1000 strokes :	1.5	- Del. quantity	
Tolerance	· -	- cm3/1000 strokes :	95.0
cm3/1000 str. +-:	1.5	- Tolerance	
Check tolerance	1.3	cm3/1000 str. +-:	25.0
	1.5		23.0
cm3/1000s. +:	1.5	Shutoff solenoid	24
Shutoff solenoid	<b>1</b>	- Volt :	24
Volt :	24 -		
	-		
		- Assembly and Adjustmen	T DIMENSIONS
ELECTR. SHUTOFF	_	_	
CONTROL LEVER, IDLE S	STOP	Dimension KF mm : 5,	2
TAITING COTONY AVEC 0		- Tolerance mm + : 0,	
Rated speed rpm :	<b>3</b> 75	Dimension MS mm : 1,4	
	J. J	Tolerance mm + : 0,	
Del. quantity	1 5		
cm3/1000 strokes :	1.5	$\sim$ SVS dimension mm : 3,0	0
Tolerance			
		-	
cm3/1000 str. +-:	1.5	-	

CONTROL LEVER POSITION SET

Control lever position YA mm : 34,8..38,8

Control lever

: 41,5..47,1 position YB mm

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06,09,96 : ISO 4113 Test oil

: 0 460 426 155 Part no. Pump designation: VE5/12F1050R381-3

Customer-spec. information : CDC Customer

: 6BT- 5.9 IND. Motor

### TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C Tolerance °C +-:

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

tiar 250 Tolerance bar + :

Test Lines : 1 680 750 000

Outside diameter : 6.00

2.00 x inside diameter : x length mm : 840

### REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm +: 0,02(0,06)

Outlet | : D

### Prestroke

(as of UT) mm : 0,3 +-: 0,02 Tolerance mm

Check

tolerance mm +: (0,04)

## INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 750

Setting mm 3.6 : Tolerance mm 0.2 Shutoff solenoid

Volt 12

# SUPPLY PUMP PRESSURE

Rated speed rpm : 750 Supply pomp pressure bar 4.0

Tolerance bar +-: 0.3 Shutoff solenoid

12 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

750 Rated speed rpm : Del. quantity

cm3/1000 strokes : 73.5

Tolerance cm3/1000 str. +-:

0.5 Spread 4.5

cm3/1000 strokes : Shutoff solenoid

12 Volt

#### IDLE SETTING

Rated speed rpm : 375

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 str. +-: 1.0 Shutoff solenoid

Volt Spread

12

cm3/1000 strokes :

7.0

Check tolerance cm3/1000s.

7.0

FULL-LOAD SPEED REGULATION	Shutoff solenoid Volt : 12
Rated speed rpm : 1100	OVERFLOW QUANTITY
Del. quantity cm3/1000 strokes : 55.0 Tolerance	Rated speed rpm : 1050 Overflow quantity
cm3/1000 str. +: 3.0	ccm/10s : 69.4 Tolerance
Volt : 12	ccm/10s +: 27.7
STARTING FUEL DELIVERY	Check tolerance ccm/10s + : 27.7
Rated speed rpm : 100 Del. quantity	Shutoff solenoid Volt : 12
cm3/1000 strokes : 90.0 Tolerance cm3/1000 str. + : 30.0	Rated speed rpm : 500 Overflow quantity
Shutoff solenoid Volt : 12	ccm/10s : 50.0 Tolerance
	ccm/10s + : 16.6
<u> </u>	Check tolerance ccm/10s + : 16.6 Shutoff solenoid
INJECTION-PUMP TEST SPECIFICATIONS	Volt : 12
TIMING DEVICE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 1050	Rated speed rpm : 1100 Del. quantity
SV travel mm : 5.4 Tolerance mm +: 0.4	cm3/1000 strokes : 55.0 Tolerance
Check tolerance mm +: 0.7	cm3/1000 str. + : 3.0 Check tolerance
Shutoff solenoid Volt : 12	cm3/1000S. + : 6.0 Shutoff solenoid Volt : 12
Rated speed rpm : 500	Rated speed rpm : 1130
SV travel mm : 1.7 Tolerance mm +: 0.4	Del. quantity cm3/1000 strokes : 30.0
Check tolerance mm +: 0.7	Check tolerance cm3/1000S. +-: 15.0 Shutoff solenoid
Shutoff solenoid Volt : 12	Volt : 12
SUPPLY PUMP PRESSURE CHARACTERISTIC	Rated speed rpm : 1200 Del. quantity
Rated speed rpm : 1050 Supply pomp	cm3/1000 strokes : 1.5 Tolerance
pressure bar : 5.2 Tolerance bar + : 0.3	cm3/1000 str. +: 1.5 Check tolerance
Shutoff solenoid Volt : 12	cm3/1000s. +-: 1.5 Shutoff solenoid Volt : 12
Rated speed rpm : 500 Supply pomp	Volt : 12 Rated speed rpm : 1050
pressure bar : 2.9 Tolerance bar +: 0.3	Del. quantity cm3/1000 strokes : 70.0

Tolerance		† Check tolerance
cm3/1000 str. +	: 1.5	+ cm3/1000s. +-: 1.5
Check tolerance	: 3.0	FULL LOAD STOP CONTROL LEVED
cm3/1000s. +- Shutoff solenoid	: 5.0	FULL-LOAD STOP CONTROL LEVER
Volt	: 12	Rated speed rpm : 375
1000	, ,,,	Del. quantity
Rated speed rpm	: 900	+ cm3/1000 strokes : 1.5
Del. quantity		+ Tolerance
cm3/1000 strokes	: 73.0	+  cm3/1000  str. + : 1.5
Tolerance	2.0	- Check tolerance
cm3/1000 str. +- Check tolerance	: 2.0	+ cm3/1000s. +-: 1.5
cm3/1000s. +-	: 4.0	IDLE DELIVERY
Shutoff solenoid	•	
Volt	: 12	+ Rated speed rpm : 450
		+ Del. quantity
	: 500	- cm3/1000 strokes : 2.0
Del. quantity	: 57.0	+ Tolerance + cm3/1000 str. +-: 2.0
cm3/1000 strokes Tolerance	; 57.0	Check tolerance
cm3/1000 str. +-	: 4.0	- cm3/1000s. +-: 2.0
Check tolerance		+ Shutoff solenoid
cm3/1000s. +-	: 6.0	+ Volt : 12
Shutoff solenoid	40	†
Volt	: 12	<u>†</u>
Rated speed rpm	: 750	I
Del. quantity		-
cm3/1000 strokes	: 73.5	+
Tolerance		+ START TRANSITION
cm3/1000 str. +	: 0.5	† 2.4
Check tolerance cm3/1000s. ←	: 3.0	+ Rated speed rpm : 240 - Del. quantity
Shutoff solenoid	. 5.0	cm3/1000 strokes : 45.0
Volt	: 12	+ Tolerance
		+ cm3/1000 str. + : 15.0
		- Shutoff solenoid
MECHANICAL SHUTOFF		+ Volt : 12
Rated speed rpm	• 1050	I
Del. quantity	. ,0,0	Rated speed rpm : 130
cm3/1000 strokes	: 1.5	- Del. quantity
Tolerance		+ cm3/1000 strokes : 100.0
cm3/1000 str. +	: 1.5	† Tolerance
Check tolerance	: 1.5	+ cm3/1000 str. +-: 30.0 + Shutoff solenoid
cm3/1000s. +- Shutoff solenoid	. 1.5	+ Volt : 12
Volt	: 12	+
		ASSEMBLY AND ADJUSTMENT DIMENSIONS
ELECTR. SHUTOFF	E CTOP	Dimonoian VE ma . E 2
CONTROL LEVER, IDLI	ESIUF	+ Dimension KF mm : 5,2 + Tolerance mm + : 0,2
Rated speed rpm	: 375	MS1 dimension mm : 1,6
Del. quantity		+ Tolerance mm +-: 0,1
cm3/1000 strokes	: 1.5	SVS dimension mm : 3,6
Tolerance	. A C	†
cm3/1000 str. +-	: 1.5	†

CONTROL LEVER POSITION SET

Control lever

position YA mm : 34,8..38,8

Control lever

position YB mm : 40,7..46,3

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06.09.96 Test oil : ISO 4113

Part no. : 0 460 426 156 Pump designation : VE6/12F1100R381-4

Customer—spec. information Customer : CDC

Motor : 6BT- 5.9 IND.

## TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C : 45 Tolerance °C + : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test nozzle holde

assembly : 1 688 901 027

Opening pressure

bar : 250 Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00 x Length mm : 840

### **REMARKS**

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm +: 0.02(0.06)

Outlet : D

## Prestroke

(as of UT) mm : 0,3 Tolerance mm + : 0,02

Check

tolerance mm +: (0,04)

# INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 900

Setting mm : 4.4
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 24

# SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Supply pomp
pressure bar : 5.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.5
Shutoff solenoid
Volt : 24

# IDLE SETTING

Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. + :1.0 Shutoff solenoid Volt 24 Spread cm3/1000 strokes : 7.0 Check tolerance cm3/1000s.7.0

+	Shutoff solenoid
FULL-LOAD SPEED REGULATION	Volt : 24
Rated speed rpm : 1150 Del. quantity	Rated speed rpm : 500 Supply pomp
cm3/1000 strokes : 47.5	pressure bar : 3.2
Tolerance	Tolerance bar +-: 0.3
cm3/1000 str. +-: 3.0	Shutoff solenoid
Shutoff solenoid +	Volt : 24
Volt : 24	
+	OVERFLOW QUANTITY
STARTING FUEL DELIVERY	5
100	Rated speed rpm : 1100
Rated speed rpm : 100	Overflow quantity
Del. quantity	ccm/10s : 69.4
cm3/1000 strokes : 110.0	Tolerance
cm3/1600 str. +-: 40.0	com/ fus ÷ : 27.7
Shutoff solenoid	Check tolerance
Volt : 24	ccm/10s + : 27.7
	Shutoff solenoid
1	Volt : 24
+	
+	Rated speed rpm : 500
	Overflow quantity
INJECTION—PUMP TEST SPECIFICATIONS +	ccm/10s : 55.5
†	Tolerance
TIMING DEVICE CHARACTERISTIC +	ccm/10s +: 16.6
Detail average at 1400	Observation And American
Rated speed rpm : 1100	Check tolerance ccm/10s + : 16.6
SV travel mm : 5.9	ccm/10s + : 16.6 Shutoff solenoid
Tolerance mm + : 0.4	Volt : 24
Check	vott . 24
tolerance mm +: 0.7	DELIVERY AND BREAKAWAY CHARACTERISTIC
Shutoff solenoid	
Volt ; 24	Rated speed rpm : 1150
+	Del. quantity
Rated speed rpm : 750	cm3/1000 strokes : 47.5
+	Tolerance
SV travel mm : 3.3	cm3/1000 str. + : 3.0
Tolerance mm +-: 0.4	Check tolerance
Check	cm3/1000s. +-: 8.0
tolerance mm +: 0.7 + Shutoff solenoid +	Shutoff solenoid Volt : 24
01	Volt : 24
Volt : 24	Rated speed rpm : 1170
SUPPLY PUMP PRESSURE CHARACTERISTIC	Del. quantity
-	cm3/1000 strokes : 30.0
Rated speed rpm : 1100	Check tolerance
Supply pomp	cm3/1000s. +-: 20.0
pressure bar : 5.8	Shutoff solenoid
Tolerance bar +: 0.3	Volt : 24
Shutoff solenoid +	2012
Volt : 24	Rated speed rpm : 1240
750	Del. quantity
Rated speed rpm : 750	cm3/1000 strokes : 1.5
Supply pomp + pressure bar : 4.3 +	Tolerance cm3/1000 str. +-: 1.5
pressure bar : 4.3 + Tolerance bar + : 0.3 +	CIID/ (UUU SCI . ' . (.)
Total difference ball	

Check tolerance	4 5	†
cm3/1000S. +: Shutoff solenoid	1.5	ELECTR. SHUTOFF
Volt :	24	CONTROL LEVER, IDLE STOP
Rated speed rpm : Del. quantity	1100	Rated speed rpm : 400 Del. quantity
cm3/1000 strokes : Tolerance	66.0	cm3/1000 strokes : 1.5
cm3/1000 str. +-: Check tolerance	1.5	cm3/1000 str. + : 1.5 Check tolerance
cm3/1000S. +-: Shuroff solenoid	3.0	+ cm3/1000s. +-: 1.5
Volt :	24	FULL-LOAD STOP CONTROL LEVER
Rated speed rpm : Del. quantity	750	Rated speed rpm : 400 Del. quantity
cm3/1000 strokes : Tolerance	83.5	cm3/1000 strokes : 1.5 Tolerance
cm3/1000 str. +-: Check tolerance	2.0	cm3/1000 str. +-: 1.5 Check tolerance
cm3/1000s. + : Shutoff solenoid	4.0	cm3/1000s. +-: 1.5
Volt :	24	IDLE DELIVER
Rated speed rpm : Del. quantity	500	Rated speed rpm : 500 Del. quantity
cm3/1000 strokes : Tolerance	87.0	+ cm3/1000 strokes : 2.0 + Tolerance
cm3/1000 str. + : Check tolerance	4.0	cm3/1000 str. + : 2.0 Check tolerance
cm3/1000S. + : Shutoff solenoid	6.0	+ cm3/1000s. + : 2.0 + Shutoff solenoid
Volt :	24	Volt : 24
Rated speed rpm : Del. quantity	1000	<u>†</u>
cm3/1000 strokes : Tolerance	67.5	<u> </u>
cm3/1000 str. +-: Check tolerance	0.5	T START TRANSITION
cm3/1000s. +-: Shutoff solenoid	3.0	Rated speed rpm : 250
Volt :	24	Del. quantity + cm3/1000 strokes : 85.0
MECHANICAL SHUTOFF		Tolerance
Rated speed rpm :	1100	Shutoff solenoid Volt : 24
Del. quantity cm3/1000 strokes :	1.5	
Tolerance cm3/1000 str. +-:	1.5	Rated speed rpm : 130 Del. quantity
Check tolerance cm3/1000S. +-:	1.5	cm3/1000 strokes : 120.0
Shutoff solenoid Volt :	24	cm3/1000 str. +-: 40.0 + Shutoff solenoid
	~ r	Volt : 24

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,02
MS1 dimension mm : 1,8
Tolerance mm + : 0,1
SVS dimension mm : 4,4

CONTROL LEVER POSITION SET

Control lever

position YA mm : 34,8..38,8

Control lever

position YB mm : 41,6..47,0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06,09,96 : ISO 4113 Test oil

: 0 460 426 157 Part no. Pump designation: VE6/12F1050R381+5

Customer-spec. information Customer : CDC

: 6 BT -5.9 IND. Motor

## TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C Tolerance \*C +-:

Overflow

restriction mm 0.55

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

bar 250 Tolerance bar +- :

: 1 680 750 000 Test lines

Outside diameter : 6.00

x inside diameter: 2.00 840 x length mm :

REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,5

Tolerance mm +: 0.02(0.06)

Outlet.

## Prestroke

(as of UT) mm : 0,3 Tolerance mm +: 0,02

Check

tolerance mm +: (0,04)

# INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 750

3.6 Setting mm Tolerance mm 0.2

Shutoff solenoid

24 Volt

# SUPPLY PUMP PRESSURE

750 Rated speed rpm : Supply pomp

pressure bar 3.8 Tolerance bar +-: 0.3

Shutoff solenoid

24 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

750 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 63.0

Tolerance

cm3/1000 str. +-: 0.5

Spread

cm3/1000 strokes :

Shutoff solenoid

24 Volt

### IDLE SETTING

Rated speed rpm 375

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 str. +: 1.0 Shutoff solenoid

Volt

24

Spread

cm3/1000 strokes : 7.0

Check tolerance

7.0 cm3/1000s.

FULL-LOAD SPEED REGULATION	Shutoff solenoid Volt : 24
Rated speed rpm : 1100	OVERFLOW QUANTITY
cm3/1000 strokes : 49.0	Rated speed rpm : 1050 Overflow quantity
cm3/1000 str. +: 3.0  Shutoff solenoid	ccm/10s : 69.4 Tolerance
Volt : 24	ccm/10s + : 27.7
STARTING FUEL DELIVERY	Check tolèrance ccm/10s + : 27.7
Rated speed rpm : 100 + Del. quantity +	Shutoff solenoid Volt : 24
cm3/1000 strokes : 90.0 + Tolerance +	Rated speed rpm : 500
cm3/1000 str. +: 25.0 + Shutoff solenoid +	Overflow quantity ccm/10s : 50.0
Volt : 24	Tolerance ccm/10s + : 16.6
	Check tolerance ccm/10s + : 16.6 Shutoff solenoid
INJECTION-PUMP TEST SPECIFICATIONS	Volt : 24
TIMING DEVICE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 1050	Rated speed rpm : 1100 Del. quantity
SV travel mm : 5.4 Tolerance mm + : 0.4	cm3/1000 strokes : 49.0 Tolerance
Check tolerance mm +: 0.7	cm3/1000 str. +-: 3.0 Check tolerance
Shutoff solenoid + Volt : 24	cm3/1000s. +-: 6.0 Shutoff solenoid
Rated speed rpm : 500 +	Volt : 24
SV travel mm : 1.6	Rated speed rpm : 1250 Del. quantity
Tolerance mm +: 0.4	cm3/1000 strokes : 1.5 Tolegance
tolerance mm +: 0.7 + Shutoff solenoid +	cm3/1000 str. +-: 1.5 Check tolerance
Volt : 24	cm3/1000s. + : 1.5 Shutoff solenoid
SUPPLY PUMP PRESSURE CHARACTERISTIC	Volt : 24
Rated speed rpm : 1050 + Supply pomp	Rated speed rpm : 1130 Del. quantity
pressure bar : 5.1 Tolerance bar + : 0.3	cm3/1000 strokes : 25.0 Tolerance
Shutoff solenoid + Volt : 24 +	cm3/1000 str. + : 20.0 Check tolerance
Rated speed rpm : 500	cm3/1000s. +-: 20.0 Shutoff solenoid
Supply pomp pressure bar : 2.7	Volt : 24
Tolerance bar +-: 0.3 +	Rated speed rpm : 1050

Dol guantity	
Del. quantity	+ Check tolerance
cm3/1000 strokes : 61.0	+ cm3/1000s. +-: 1.5
	1.5
Tolerance	Ť
cm3/1000 str. + : 1.5	+ FULL-LOAD STOP CONTROL LEVER
Check tolerance	1
	Datad anad num . 775
	+ Rated speed rpm : 375
Shutoff solenoid	+ Del. quantity
Volt : 24	+ cm3/1000 strokes : 1.5
vott . 24	
	+ Tolerance
Rated speed rpm : 900	+ cm3/1000 str. $+$ : 1.5
Del. quantity	Check tolerance
cm3/1000 strokes : 62.5	+ cm3/1000s. $+-$ : 1.5
Tolerance	1
cm3/1000 str. +-: 1.5	TOLE DELTHEDY
	† IDLE DELIVERY
Check tolerance	+
cm3/1000s. $+-:$ 3.5	+ Rated speed rpm : 500
Shutoff solenoid	+ Del. quantity
Volt : 24	+ cm3/1000 strokes : 2.0
	† Tolerance
Dated anned non . FAA	
Rated speed rpm : 500	+ cm3/1000 str. +-: 2.0
Del. quantity	+ Check tolerance
cm3/1000 strokes : 60.0	+ cm3/1000s. $+$ : 2.0
Tolerance	+ Shutoff solenoid
cm3/1000 str. +-: 4.0	+ Volt : 24
Shutoff solenoid	
Volt : 24	Ť
	<del>-</del>
Rated speed rpm : 750	1
	i e
Del. quantity	†
cm3/1 <b>000</b> strokes : 63.0	+
Tolerance	+ START TRANSITION
: Uteranice	1 DINULLIUMISTITOM
	ì
cm3/1000 str. +-: 0.5	+
cm3/1000 str. +-: 0.5	+ Rated speed rpm : 350
cm3/1000 str. +-: 0.5 Check tolerance	Rated speed rpm : 350
<pre>cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0</pre>	+ Del. quantity
<pre>cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid</pre>	Del. quantity + cm3/1000 strokes : 55.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid	Del. quantity + cm3/1000 strokes : 55.0
<pre>cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0</pre>	Del. quantity - cm3/1000 strokes : 55.0 - Tolerance
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid	Del. quantity - cm3/1000 strokes : 55.0 - Tolerance - cm3/1000 str. + : 10.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24	Del. quantity - cm3/1000 strokes : 55.0 - Tolerance - cm3/1000 str. + : 10.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. +-: 10.0 Shutoff solenoid Volt : 24
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24 Rated speed rpm : 130
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24 Rated speed rpm : 130
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24  Rated speed rpm : 130 Del. quantity
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24  Rated speed rpm : 130 Del. quantity cm3/1000 strokes : 95.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000S. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24  Rated speed rpm : 130 Del. quantity cm3/1000 strokes : 95.0 Tolerance
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5	Del. quantity cm3/1000 strokes : 55.0 Tolerance cm3/1000 str. + : 10.0 Shutoff solenoid Volt : 24  Rated speed rpm : 130 Del. quantity cm3/1000 strokes : 95.0 Tolerance
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +-: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +-: 25.0 Shutoff solenoid Volt: 24
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +-: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +-: 25.0 Shutoff solenoid Volt: 24
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF	Del. quantity cm3/1000 strokes: 55.0 Tolerance cm3/1000 str. +-: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +-: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24	Del. quantity cm3/1000 strokes : 55.0  Tolerance cm3/1000 str. + : 10.0  Shutoff solenoid Volt : 24  Rated speed rpm : 130 Del. quantity cm3/1000 strokes : 95.0  Tolerance cm3/1000 str. + : 25.0  Shutoff solenoid Volt : 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm : 5,2
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0  Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0  Tolerance cm3/1000 str. +: 25.0  Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm: +: 0,2
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0  Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0  Tolerance cm3/1000 str. +: 25.0  Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm: +: 0,2
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm: +: 0,2 Dimension MS mm: 1,4
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm +: 0,2 Dimension MS mm: 1,4 Tolerance mm +: 0,1
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm: +: 0,2 Dimension MS mm: 1,4
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm +: 0,2 Dimension MS mm: 1,4 Tolerance mm +: 0,1
Cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm +: 0,2 Dimension MS mm: 1,4 Tolerance mm +: 0,1
cm3/1000 str. + : 0.5 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 24  MECHANICAL SHUTOFF  Rated speed rpm : 1050 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes: 55.0  Tolerance cm3/1000 str. +: 10.0 Shutoff solenoid Volt: 24  Rated speed rpm: 130 Del. quantity cm3/1000 strokes: 95.0 Tolerance cm3/1000 str. +: 25.0 Shutoff solenoid Volt: 24  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension KF mm: 5,2 Tolerance mm +: 0,2 Dimension MS mm: 1,4 Tolerance mm +: 0,1

CONTROL LEVER POSITION SET

Control lever

position YA mm : 34,8..38,8

Control lever

position YB mm : 39,9..45,5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.95 Test oil : 180 4113

Part no. : 0 460 485 025 Pump designation : VE5/8F2100L633

Customer-spec. information

Customer : VW

Motor : 2,41 SD f. T4
Power KW : 57.0

## TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 000

Opening pressure

bar : 147 Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.3 Tolerance mm + : 0.2 Shutoff solenoid

Shutott solenoid

Volt : 12

## SUPPLY PUMP PRESSURE

Rated speed rpm : 1500

Supply pomp pressure bar

pressure bar : 7.4
Tolerance bar + : 0.3
Shutoff salenoid

Shutoff solenoid

Volt : 12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250

Del. quantity

cm3/1000 strokes : 36.0

Tolerance

cm3/1000 str. +-: 0.5

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

Volt : 12

### IDLE SETTING

Rated speed rpm : 415 Del. quantity

cm3/1000 strokes : 8.0

Tolerance

cm3/1000 str. + : 1.0 Shutoff sclenoid

12

Volt

Spread cm3/1000 strokes : 2.0

Check tolerance

cm3/1000s. : 3.0

#### FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400

Del. quantity

cm3/1000 strokes : 12.0

Tolerance

cm3/1000 str. + : 2.0

Shutoff solenoid

Volt : 12

# STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity +	- Check
cm3/1000 strokes : 60.0	tolerance mm +-: 0.7
Tolerance	- Shutoff solenoid
cm3/1000 str. +-: 25.0	- Volt : 12
Shutoff solenoid	. 12
Volt : 12	CUIDDLY DUMB DECCUEE CHARACTERICATE
vott : 12	- SUPPLY PUMP PRESSURE CHARACTERISTIC
1	2-1-1
†	- Rated speed rpm : 1790
tt	- Supply pomp
LOAD-DEPENDENT START OF DELIVERY	- pressure bar : 8.1
SETTING	- Tolerance bar + : 0.3
+	- Shutoff solenoid
DELIVERY DIFFERENCE	- Volt : 12
+	•
Rated speed rpm : 1500	- Rated speed rpm : 1100
Del. quantity	- Supply pomp
cm3/1000 strokes : -7.0	- pressure bar : 6.2
Tolerance	- Tolerance bar +-: 0.3
cm3/1000 str. +-: 1.0	- Shutoff solenoid
Shutoff solenoid	- Volt : 12
Volt : 12	- 16
VULL ; 12	AVEREI ALL OLIANITITY
PRESSURE PASSEDENCE	- OVERFLOW QUANTITY
PRESSURE DIFFERENCE	n nahad awad awa - 2400
4700	- Rated speed rpm : 2100
Rated speed rpm : 1500	- Overflow quantity
Del. quantity	- ccm/10s : 97.2
cm3/1000 strokes : -0.2	- Tolerance
Toterance	- ccm/10s +-: 41.6
cm3/1000 str. +-: 0.1	
Shutoff solenoid	- Check tolerance
Volt : 12	- ccm/10s +-: 55.5
	- Shutoff solenoid
TIMING-DEVICE TRAVEL DIFFERENCE	- Volt : 12
Rated speed rpm : 1500	- Rated speed rpm : 600
Del. quantity	- Overflow quantity
cm3/1000 strokes : -1.2	- ccm/10s : 63.8
Tolerance	- Tolerance
cm3/1000 str. + : 0.1	- ccm/10s +-: 22.2
	- (0111/105 +- : 22.2
Shutoff solenoid	
	Chook halamana
Volt : 12	- Check tolerance
Volt : 12	- ccm/10s + : 34.7
	- ccm/10s +-: 34.7 - Shutoff solenoid
INJECTION—PUMP TEST SPECIFICATIONS	- ccm/10s + : 34.7
INJECTION—PUMP TEST SPECIFICATIONS	- ccm/10s +-: 34.7 - Shutoff solenoid - Volt : 12
	- ccm/10s +-: 34.7 - Shutoff solenoid
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC	ccm/10s +: 34.7 Shutoff solenoid Volt : 12 DELIVERY AND BREAKAWAY CHARACTERISTIC
INJECTION—PUMP TEST SPECIFICATIONS	ccm/10s +: 34.7 Shutoff solenoid Volt : 12 DELIVERY AND BREAKAWAY CHARACTERISTIC Rated speed rpm : 2400
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC	ccm/10s +: 34.7 Shutoff solenoid Volt : 12 DELIVERY AND BREAKAWAY CHARACTERISTIC Rated speed rpm : 2400
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm + : 0.4 Check	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm +-: 0.4  Check tolerance mm +-: 0.7	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm +-: 0.4  Check tolerance mm +-: 0.7  Shutoff solenoid	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm +-: 0.4  Check tolerance mm +-: 0.7	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0 Shutoff solenoid
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm + : 0.4  Check tolerance mm + : 0.7  Shutoff solenoid Volt : 12	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm +-: 0.4  Check tolerance mm +-: 0.7  Shutoff solenoid	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm + : 0.4  Check tolerance mm + : 0.7  Shutoff solenoid Volt : 12  Rated speed rpm : 1100	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3 Tolerance mm + : 0.4 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 12  Rated speed rpm : 1100  SV travel mm : 1.6	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity
INJECTION—PUMP TEST SPECIFICATIONS  TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1790  SV travel mm : 6.3  Tolerance mm + : 0.4  Check tolerance mm + : 0.7  Shutoff solenoid Volt : 12  Rated speed rpm : 1100	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2400 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. +: 2.0 Check tolerance cm3/1000s. +: 4.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300

Tolerance	1	Spread
cm3/1000 str. +-:	5.0	cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. +-:	6.0	FULL-LOAD STOP CONTROL LEVER
Shutoff solenoid Volt :	12	Rated speed rpm : 415
	2600	Del. quantity cm3/1000 strokes : 1.5
Del. quantity cm3/1000 strokes :	3.0	Tolerance cm3/1000 str. +-: 1.5
Tolerance cm3/1000 str. +-:	3.0	Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. +-:	3.0	Check tolerance cm3/1000s. +-: 1.5
Shutoff solenoid Volt :	12	Spread cm3/1000 strokes : 5.0
Rated speed rpm : Del. quantity	2100	
cm3/1000 strokes : Tolerance	30.0	
cm3/1000 str. +-: Check tolerance	1.0	CHECKING LOAD-DEPENDENT
cm3/1000s. +-: Shutoff solenoid	2.2	START OF DELIVERY
Volt :	12	DELIVERY DIFFERENCE
Rated speed rpm : Del. quantity	600	Rated speed rpm : 1500 Del. quantity
cm3/1000 strokes : Tolerance	33.8	cm3/1000 strokes : -10.5 Tolerance
cm3/1000 str. +-: Check tolerance	1.5	cm3/1000 str. + : 3.0 Check tolerance
cm3/1000s. +-: Shutoff solenoid	3.0	cm3/1000s. +-: 4.0 Shutoff solenoid
Volt :	12	Volt : 12
Rated speed rpm : Del. quantity	1250	TIMING-DEVICE TRAVEL DIFFERENCE
cm3/1000 strokes : Tolerance	36.0	Rated speed rpm : 1500 Del. quantity
cm3/1000 str. +-: Check tolerance	0.5	cm3/1000 strokes : -1.2 Tolerance
cm3/1000s. +-: Shutoff solenoid	2.2	cm3/1000 str. +-: 0.1 Check tolerance
Volt :	12	cm3/1000s. +-: 0.1 Shutoff solenoid
		Volt : 12
ELECTR. SHUTOFF CONTROL LEVER, IDLE S	STOP	DELIVERY DIFFERENCE
Rated speed rpm :	415	Rated speed rpm : 1500 Del. quantity
Del. quantity cm3/1000 strokes :	1.5	cm3/1000 strokes : 1.5 Tolerance
Tolerance cm3/1000 str. +-:	1.5	cm3/1000 str. +-: 1.5 Check tolerance
Check tolerance cm3/1000S. ←:	1.5	cm3/1000s. +-: 1.5 Shutoff solenoid
	+	Volt : 12

# PRESSURE DIFFERENCE

Rated speed rpm : 1500

Supply pomp

-1.0pressure bar Tolerance bar +: 0.2 Shutoff solenoid

Volt 12

# TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : Tolerance mm +:

Check

tolerance mm + : 0.6

Shutoff solenoid

12 Volt

Rated speed rpm : 180

Del. quantity

cm3/1000 strokes : *რ*ე.0

Tolerance

cm3/1000 str. +: 25.0

Shutoff solenoid

Volt 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3 Tolerance mm + : 0,1 Dimension KF mm : 5,8 Tolerance mm + : 0,1

Dimension MS mm : 1,4

Tolerance mm + : 0,1

## CONTROL LEVER POSITION SET

Control lever

position YA mm : 37,2..39,2

Control lever

: 38,5..49,5 position YB mm

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96 Test oil : ISO 4113

Part no. : 0 460 485 036 Pump designation : VE5/8F2100L750

Customer—spec. information Customer : VW Motor : 2,4L SD Fower KW : 55.0

## TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +- : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 000

Opening pressure

bar : 147 Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.3
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

## SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pomp
pressure bar : 7.4
Tolerance bar +-: 0.3
Shutoff solenoid
Volt : 12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. +: 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

# HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +-: 0.5
Shutoff solenoid
Volt : 12

# IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

## HIGH IDLE SETTING

Rated speed rpm : 465
Del. quantity
cm3/1000 strokes : 8.0

Tolerance	<b>-</b>
cm3/1000 str. +-: 1.0	
Shutoff solenoid -	INJECTION-PUMP TEST SPECIFICATIONS
Volt : 12 -	-
•	TIMING DEVICE CHARACTERISTIC
FULL-LOAD SPEED REGULATION -	
1	Rated speed rpm : 1790
Rated speed rpm : 2400 -	<b>-</b>
Del. quantity -	- SV travel mm : 6.3
cm3/1000 strokes : 12.0	Tolerance mm + : 0.4
Tolerance	- Check
cm3/1000 str. +-: 2.0	tolerance mm + : 0.7
Shutoff solenoid -	- Shutoff solenoid
Volt : 12 -	<b>Volt</b> : 12
•	+
STARTING FUEL DELIVERY	Rated speed rpm : 1100
-	<b>+</b>
Rated speed rpm : 100 -	SV travel mm : 1.6
Del. quantity	Tolerance mm + : 0.4
cm3/1000 strokes : 55.0 -	- Check
Tolerance	tolerance mm + : 0.7
cm3/1000 str. +-: 20.0	Shutoff solenoid
Shutoff solenoid -	- Volt : 12
Volt : 12 -	+
•	SUPPLY PUMP PRESSURE CHARACTERISTIC
-	
-	Rated speed rpm : 1790
LOAD-DEPENDENT START OF DELIVERY	Supply pomp
SETTING -	pressure bar : 8.1
•	Tolerance bar +-: 0.3
DELIVERY DIFFERENCE	Shutoff solenoid
	- Volt : 12
Rated speed rpm : 1500	1
Del. quantity -	Rated speed rpm : 1100
cm3/1000 strokes : -7.0	Supply pomp
Tolerance	pressure bar : 6.2
cm3/1000 str. +: 1.0	Tolerance bar + : 0.3
Shutoff solenoid -	Shutoff solenoid
Volt : 12 -	+ Volt : 12
	+
PRESSURE DIFFERENCE	OVERFLOW QUANTITY
	+
Rated speed rpm : 1500	Rated speed rpm : 2100
Del. quantity	Overflow quantity
cm3/1000 strokes : -0.2	ccm/10s : 97.2
Tolerance	Tolerance
cm3/1000 str. +: 0.1	- ccm/10s + : 41.6
Shutoff solenoid -	-
Volt : 12	- Check tolerance
	ccm/10s + : 55.5
TIMING-DEVICE TRAVEL DIFFERENCE	Shutoff solenoid
	+ Volt : 12
Rated speed rpm : 1500	+
Del. quantity	Rated speed rpm : 600
cm3/1000 strokes : -1.2	Overflow quantity
Tolerance	ccm/10s : 63.8
cm3/1000 str. +-: 0.1	- Tolerance
Shutoff solenoid	ccm/10s + : 22.2
Volt : 12	<del> </del>
	•

			#	Tolerance			
Check tolerance			+	cm3/1000 str. +-	:	1.5	
ccm/10s +-	:	34.7	4	Check tolerance			
Shutoff solenoid			#	cm3/1000s. +-	:	3.0	
Volt	:	12	#	Shutoff solenoid			
			4	Volt	:	12	
DELIVERY AND BREAK	'AWA	Y CHARACTERISTIC	+				
			+	Rated speed rpm	: '	1250	
Rated speed rpm	:	2400	4	Del. quantity			
Del. quantity			+	cm3/1000 strokes	:	36.0	
cm3/1000 strokes	:	12.0	+	Tolerance			
Tolerance	•		1	cm3/1000 str. +-	:	0.5	
cm3/1000 str. +-	:	2.0	1	Check tolerance	•		
Check tolerance	•		1	cm3/1000s. +-	•	2.2	
cm3/1000s. +-	:	4.0	1	Shutoff solenoid	•		
Shutoff solenoid	•		1	Volt	•	12	
Volt	:	12	1		•		
	•		1				
Rated speed rpm	:	2300	1	MECHANICAL SHUTOFF	:		
Del. quantity	•		+				
cm3/1000 strokes	:	22.0	+	Rated speed rpm	: 3	2100	
Tolerance			+	Del. quantity			
cm3/1000 str. +-	:	5.0	+	cm3/1000 strokes	:	1.5	
Check tolerance			+	Tolerance			
cm3/1000s. +-		6.0	+	cm3/1000 str. +	:	1.5	
Shutoff solenoid			+	Check tolerance			
Volt	:	12	+	cm3/1000s. +-	:	1.5	
			+	Shutoff solenoid			
Rated speed rpm	:	2600	+	Volt	:	12	
Del. quantity			+				
cm3/1000 strokes	:	3.0	+				<del></del>
Tolerance			+	ELECTR. SHUTOFF			
cm3/1000 str. +	:	3.0	+	CONTROL LEVER, IDL	E STO	OP	
Check tolerance			+				
cm3/1000s. +-	:	3.0	+	Rated speed rpm	:	415	
Shutoff solenoid			+	Del. quantity			
Volt	:	12	+	cm3/1000 strokes	:	1.5	
		2422	†	Tolerance			
Rated speed rpm	:	2100	+	cm3/1000 str. +-	:	1.5	
Del. quantity		70.0	†	Check tolerance		4 =	
cm3/1000 strokes	:	30.0	+	cm3/1000s. +-	:	1.5	
Tolerance		4.0	Ť	Spread		5.0	
cm3/1000 str. +	•	1.0	Ť	cm3/1000 strokes	•	5.0	
Check tolerance		2.2	T	FULL-LOAD STOP CON	TDO	LEVER	
cm3/1000s. +- Shutoff solenoid	•	2.6	T	FULL-LOAD STOP CON	HRUL	LEVEK	
Volt		12	T	Rated speed rpm	:	415	
voct	•	12	I	Del. quantity	•	417	
Rated speed rpm	:	1850	I	cm3/1000 strokes	•	1.5	
Del. quantity	•	1000	I	Tolerance	•	1.5	
cm3/1000 strokes	•	33.0	<u> </u>	cm3/1000 str. +	•	1.5	
Tolerance	•		4	Spread	•	1.5	
cm3/1000 str. +	•	3.0	1	cm3/1000 strokes	•	5.0	
Shutoff solenoid	•	•••	1	Check tolerance	•	- 10	
Volt	:	12	+	cm3/1000s. +-	:	1.5	
	-	· <del>-</del>	1	Spread			
Rated speed rpm	:	600	1	cm3/1000 strokes	•	5.0	
Del. quantity			₽				
cm3/1000 strokes	:	33.8	+				

		+ START TRANSITION	
CHECKING LOAD-DEPI		Rated speed rpm Del. quantity	: 380
		+ cm3/1000 strokes	: 27.0
DELIVERY DIFFEREN		Tolerance cm3/1000 str. +-	
ated speed rpm el. quantity		+ Shutoff solenoid + Volt	: 12
n3/1000 strokes olerance	: -10.5	‡	
n3/1000 str. +- neck tolerance	: 3.0	Rated speed rpm Del. quantity	: 180
m3/1000s. +- hutoff solenoid		cm3/1000 strckes Tolerance	: 60.0
olt	: 12	cm3/1000 str. +-	
IMING-DEVICE TRA	VEL DIFFERENCE	Volt	: 12
ated speed rpm	: 1500	ASSEMBLY AND ADJU	CTHENT DIMENCIA
el. quantity m3/1000 strokes	: -1.2	+	
olerance m3/1000 str. +- heck tolerance		+ Dimension K mm + Tolerance mm ← + Dimension KF mm	: 0,1
n3/1000s. +- hutoff solenoid	: 0.1	Tolerance mm + Dimension MS mm	: 0,2
olt	: 12	Tolerance mm +	: 0,1
ELIVERY DIFFEREN	CE	POTENTIOMETER SET	
ated speed rpm el. quantity	: 1500	1. measurement	
m3/1000 strokes olerance	: 1.5	voltage Volt	: 5,0
m3/1000 str. +-		voltage Volt	: 0,7 V
m3/1000s. +-	: 1.5	CONTROL LEVER POS	TTTON
olt		SET SET	111014
PRESSURE DIFFEREN	CE	Control lever	
lated speed rpm Supply pomp	: 1500	position YA mm	: 32,834,8
pressure bar	: -1.0	+ Control Lever	
olerance bar +- hutoff solenoid		position YB mm	: 61,568.5
olt	: 12		
IMING-DEVICE TRA	VEL DIFFERENCE	End of test-speci	fication sheet
Rated speed rpm		+	
olerance mm +-	: 0.2	‡	
olerance mm +-		‡	
/olt	: 12	†	

# START TRANSITION

Del. quantity		
cm3/1000 strokes	:	27.0
Tolerance		
cm3/1000 str. +-	:	10.0
Shutoff solenoid Volt		12
VOLT	•	12
Rated speed rpm	:	180
Del. quantity		
cm3/1000 strokes	:	60.0
Tolerance	:	
Tolerance cm3/1000 str. +-	:	60.0 25.0
Tolerance cm3/1000 str. +- Shutoff solenoid	•	25.0
Tolerance cm3/1000 str. +-	:	

# EMBLY AND ADJUSTMENT DIMENSIONS

Dimension	K mm	:	3,3
Tolerance	mm +-	:	0,1
Dimension:	KF mm	:	5,8
Tolerance	mm +-	•	0,2
Dimension	MS mm		1,4
Tolerance	mm +-	:	0,1

# ENTIOMETER

<ol> <li>measurement voltage Volt</li> </ol>	:	5,0	
<ol> <li>measurement voltage Volt</li> </ol>	:	0,7	١

# TROL LEVER POSITION

Control lever position YA mm	: 32,834,8
Control Lever	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 04.11.96 Edition Test oil : ISO 4113

: 0 460 485 037 Part no. Pump designation : VE5/8F2100L752

Customer-spec. information Customer : VW

Moter : 2,4L SD f. T4

Power KW 55.0

# TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance °C +-:

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35 Tolerance bar + :

Test nozzle holde

assembly : 1 688 901 000

Opening pressure

147 bar Tolerance bar + :

: 1 680 750 000 Test lines

Outside diameter : 6.00

2.00 x inside diameter : x length mm 840

# REMARKS

INJECTION PUMP SETTING VALUES

### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm 4.3 Tolerance mm +-: 0.2 Shutoff solenoid

Volt 12

# SUPPLY PUMP PRESSURE

1500 Rated speed rpm :

Supply pomp

pressure bar 7.4 Tolerance bar +-: 0.3

Shutoff solenoid

Volt 12

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250

Del. quantity

cm3/1000 strokes : 36.0

Tolerance

cm3/1000 str. + : 0.5

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

Volt 12

# HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540

Del. quantity

cm3/1000 strokes : 7.0

Tolerance

cm3/1000 str. + :0.5

Shutoff solenoid

12 Volt

# IDLE DELIVERY

Rated speed rpm : 415

Del. quantity

cm3/1000 strokes : 2.0

Tolerance

cm3/1000 str. + :1.0

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

Volt 12

# HIGH IDLE SETTING

450 Rated speed rpm :

Qel. quantity

cm3/1000 strokes : 8.0

Tolerance	1
cm3/1000 str. +-: 1.0	Ţ
Shutoff solenoid	INJECTION-PUMP TEST SPECIFICATIONS
Volt : 12	TIMING DEVICE CHARACTERISTIC
FULL-LOAD SPEED REGULATION	+ ITHING DEVICE CHARACTERISTIC
	Rated speed rpm : 1790
Rated speed rpm : 2400 Del. quantity	+ SV travel mm : 6.3
cm3/1000 strokes : 12.0	+ Tolerance mm +: 0.4
Tolerance	+ Check
cm3/1000 str. +-: 2.0 Shutoff solenoid	tolerance mm +: 0.7 Shutoff solenoid
Volt : 12	+ Volt : 12
	+
STARTING FUEL DELIVERY	Rated speed rpm : 1100
Rated speed rpm : 100	SV travel mm : 1.6
Del. quantity cm3/1000 strokes : 60.0	+ Tolerance mm +: 0.4
Tolerance	tolerance mm + : 0.7
cm3/1000 str. + : 25.0	+ Shutoff solenoid
Shutoff solenoid Volt : 12	+ Volt : 12
vo(t . 12	F SUPPLY PUMP PRESSURE CHARACTERISTIC
	Poted aread pure a 4700
LOAD-DEPENDENT START OF DELIVERY	+ Rated speed rpm : 1790 + Supply pomp
SETTING	+ pressure bar : 8.1
NELVIERY STREEDINGE	Tolerance bar +: 0.3
DELIVERY DIFFERENCE	+ Shutoff solenoid + Volt : 12
Rated speed rpm : 1500	+
Del. quantity cm3/1000 strokes : -7.0	+ Rated speed rpm : 1100 + Supply pomp
Tolerance	pressure bar : 6.2
cm3/1000 str. + : 1.0	Tolerance bar +: 0.3
Shutoff solenoid Volt : 12	+ Shutoff solenoid + Volt : 12
7000	+
PRESSURE DIFFERENCE	+ OVERFLOW QUANTITY
Rated speed rpm : 1500	Rated speed rpm : 2100
Del. quantity	+ Overflow quantity
cm3/1000 strokes : -0.2 Tolerance	+ ccm/10s : 97.2 + Tolerance
cm3/1000 str. +: 0.1	+ ccm/10s +: 41.6
Shutoff solenoid Volt : 12	Check tolerance
VO(C . 12	+ ccm/10s +-: 55.5
TIMING-DEVICE TRAVEL DIFFERENCE	+ Shutoff solenoid
Rated speed rpm : 1500	† Volt : 12
Del. quantity	Rated speed rpm : 600
cm3/1000 strokes : -1.2	+ Overflow quantity + ccm/10s : 63.8
Tolerance cm3/1000 str. +-: 0.1	+ Tolerance : 65.6
Shutoff solenoid	- ccm/10s +-: 22.2
Volt : 12	İ
	T

		1 Not monthly
Check tolerance		+ Del. quantity + cm3/1000 strokes : 36.0
ccm/10s + :	34.7	+ cm3/1000 strokes : 36.0 + Tolerance
Shutoff solenoid	54.1	- cm3/1000 str. +: 0.5
Volt :	12	+ Check tolerance
		+ cm3/1000s. +-: 2.2
DELIVERY AND BREAKAWA	AY CHARACTERISTIC	+ Shutoff solenoid
		+ Volt : 12
Rated speed rpa :	2400	+
Del. quantity		†
cm3/1000 strokes :	12.0	P. Para allument
Tolerance	2,0	+ ELECTR. SHUTOFF
cm3/1000 str. + : Check tolerance	2.0	CONTROL LEVER, IDLE STOP
cm3/1000s. + :	4.C	Rated speed rpm : 415
Shutoff solenoid	4.0	Del. quantity
Volt :	12	+ cm3/1000 strokes : 1.5
		+ Tolerance
Rated speed rpm :	2300	+ cm3/1000 str. $+$ : 1.5
Del. quantity		+ Sheck tolerance
cm3/1000 strokes :	22.0	+  cm3/1000s. + : 1.5
Tolerance		+ Spread
cm3/1000 str. +:	5.0	- cm3/1000 strokes : 5.0
Check tolerance	6.0	FULL LOAD STOP CONTROL LEVED
cm3/1000s. +-: Shutoff solenoid	6.0	+ FULL-LOAD STOP CONTROL LEVER
Volt :	12	Rated speed rpm : 415
,	72	+ Del. quantity
Rated speed rpm :	2600	+ cm3/1000 strokes : 1.5
Del. quantity		+ Tolerance
cm3/1000 strokes :	3.6	+ cm3/1000 str. $+$ : 1.5
Tolerance		Spread
cm3/1000 str. +-:	3.0	+ cm3/1000 strokes : 5.0
Check tolerance		+ Check tolerance
cm3/1000s. +-:	3.0	+ cm3/1000s. +-: 1.5
Shutoff solenoid	12	+ Spread + cm3/1000 strokes : 5.0
Volt :	12	T cms/ toou strokes : 5.0
Rated speed rpm :	2100	I
Del. quantity	2,00	1
cm3/1000 strokes :	30.0	
Tolerance		+ RESIDUAL QUANTITY
cm3/1000 str. $+-:$	1.0	+
Check tolerance		+ Rated speed rpm : 490
cm3/1000s. +-:	2.2	+ Del. quantity
Shutoff solenoid	13	+ cm3/1000 strokes : 7.8
Volt :	12	+ Tolerance + cm3/1000 str. : ← : 1.0
Rated speed rpm :	600	Check tolerance
Del. quantity	900	- cm3/1000s. + : 2.5
cm3/1000 strokes :	33.8	+ Shutoff solenoid
Tolerance		+ Volt : 12
cm3/1000 str. +-:	1.5	+
Check tolerance		+
cm3/1000s. +-:	3.0	AUPOLONIA LA CAMPAZA MARIA
Shutoff solenoid	12	CHECKING LOAD-DEPENDENT
Volt :	12	T START OF DELIVERY
Rated speed rpm :	1250	T DELIVERY DIFFERENCE
nated opecu i piii	1670	
		a a constant of the constant o

Rated speed rpm	:	1500	+	ł
Del. quantity cm3/1000 strokes	:	-10.5	-	F
Tolerance cm3/1000 str. +-	:	3.0	-	F
Check tolerance cm3/1000s. +	:	4.0	-	-
Shutoff solenoid Volt	:	12	•	
TIMING-DEVICE TRAV	/EL	DIFFERENCE		
Rated speed rpm Del. quantity	:	1500		E
cm3/1000 strokes Tolerance	:	-1.2	-	-
cm3/1000 str. + Check tolerance	4s #	0.1		E
cm3/1000s. +- Shutoff solenoid	:	0.1	-	ł
Volt	:	12	-	Ì
DELIVERY DIFFERENCE	Œ		-	-
Rated speed rpm Del. quantity	:	1500		-
cm3/1000 strokes Tolerance	:	1.5		-
cm3/1000 str. +- Check tolerance	:	1.5	-	<u> </u>
cm3/1000s. +- Shutoff solenoid	•	1.5	-	-
Volt	:	12	•	-
PRESSURE DIFFERENCE	Œ		4	+
Rated speed rpm Supply pomp	:	1500	-	<u> </u>
. 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	:	-1.0 0.2	1	<u> </u>
Shutoff solenoid Volt	:	12	3	<u> </u>
TIMING-DEVICE TRAV	/EL	DIFFERENCE	-	+
Rated speed rpm	•	1500	-	F
Tolerance mm +- Check	•	0.2	-	F
tolerance mm + Shutoff solenoid	•	0.6	-	F
Volt	:	12	-	-
START TRANSITION			7	
Rated speed rpm Del. quantity	:	380	1	E
cm3/1000 strokes	:	27.0	7	F

Shutoff solenoid 12 Volt Rated speed rpm : 180 Del. quantity cm3/1000 strokes : 60.0 Tolerance cm3/1000 str. +-: 25.0 Shutoff solenoid Volt 12 ASSEMBLY AND ADJUSTMENT DIMENSIONS Dimension K mm : 3,3 Tolerance mm +: 0,1 Dimension KF mm : 5,8 Tolerance mm +: 0,2 Dimension MS mm : 1,4 Tolerance mm +-: 0,2 CONTROL LEVER POSITION SET Control lever position YA mm : 37,2..39,2 Control lever position YB mm : 38,5..49,5

End of test-specification sheet

Tolerance

cm3/1000 str. + : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96 Test oil : ISO 4113

Part no. : 0 460 414 123 Pump designation : VE4/11F2000R624-1

Customer—spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

# TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45 Tolerance °C +-: 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 114

Opening pressure

ber : 207
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

# REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 0,52
Tolerance mm: + : 0,05

Outlet : B KDEP1151

# INJECTION PUMP SETTING VALUES

### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm +: 0.1
Shutoff solenoid

Volt : 12

# SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Supply pomp

pressure bar : 7.4
Tolerance bar + : 0.3

Shutoff solenoid

Volt : 12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Reted speed rpm : 500
Del. quantity

cm3/1000 strokes : 36.0

Del. quantity cm3/1000 strokes :

cm3/1000 strokes : 28.5 Tolerance

cm3/1000 str. +-: 0.5 Tolerance

cm3/1000 str. +: 0.2 Spread

cm3/1000 strokes : 3.0 Shutoff sclengid

Volt : 12

Shutoff solenoid Volt : 12

Check tolerance cm3/1000s. : 4.0

### IDLE SETTING

Rated speed rpm : 425 Del. quantity

cm3/1000 strokes : 10.5 Tolerance

cm3/1000 str. +: 1.0 Shutoff solenoid

Volt : 12 Spread

cm3/1000 strokes : 3.0

Check tolerance cm3/1000s. : 4.0

	Supply pomp
1	pressure bar : 5.7
+	Tolerance bar + : 0.3
FULL LOAD COPED DECULATION	Shutoff solenoid
FULL-LOAD SPEED REGULATION	Volt : 12
Rated speed rpm : 2200	Rated speed rpm : 1150
Del. quantity	Supply pomp
cm3/1000 strokes : 26.0	pressure bar : 7.2 Tolerance bar + : 0.3
cm3/1000 str. + : 1.0	Shutoff solenoid
Shutoff solenoid	Volt : 12
Volt : 12 +	OVEREL OLI GUARITYTY
STARTING FUEL DELIVERY	OVERFLOW QUANTITY
THE PERIOD OF TH	Rated speed rpm : 500
Rated speed rpm : 100	Overflow quantity
Del. quantity + cm3/1000 strokes : 45.0 +	ccm/10s : 119.4 Tolerance
Tolerance	ccm/10s + : 22.2
cm3/1000 str. +-: 20.0	
Shutoff solenoid + Volt : 12 +	Check tolerance ccm/10s ←: 22.2
volt : 12 ‡	ccm/10s + : 22.2 Shutoff solenoid
+	Volt : 12
†	D A - 1 1 4050
<u> </u>	Rated speed rpm : 1950 Overflow quantity
INJECTION—PUMP TEST SPECIFICATIONS	ccm/10s : 150.0
+	Tolerance
TIMING DEVICE CHARACTERISTIC	ccm/10s + : 34.7
Rated speed rpm : 2000	Check tolerance
+	ccm/10s +: 34.7
SV travel mm : 6.4 + Tolerance mm + : 0.4	Shutoff solenoid
101 Brance nm ++ : 11.4 +	Mala 4 97
	Volt : 12
Check tolerance mm ←: 0.9	Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC
Check tolerance mm +: 0.9 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC
Check tolerance mm ←: 0.9	DELIVERY AND BREAKAWAY CHARACTERISTIC Rated speed rpm : 2200
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12	DELIVERY AND BREAKAWAY CHARACTERISTIC
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200  Del. quantity cm3/1000 strokes : 26.0  Tolerance
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200  Del. quantity  cm3/1000 strokes : 26.0  Tolerance  cm3/1000 str. +-: 1.0
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200  Del. quantity cm3/1000 strokes : 26.0  Tolerance cm3/1000 str. +-: 1.0  Check tolerance
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. +-: 1.0 Check tolerance cm3/1000s. +-: 5.0
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity
Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0
Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance
Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Voit : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0 Shutoff solenoid
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0 Shutoff solenoid Volt : 12
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2400
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0 Shutoff solenoid Volt : 12
Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: C.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12	DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. + : 6.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2400 Del. quantity

Tolerance	+ Rated speed rpm : 425
cm3/1000 str. +-: 2.5	+ Del. quantity
Check tolerance	+ cm3/1000 strokes : 1.5
cm3/1000s. +: 2.5	+ Tolerance
Shutoff solenoid	+ cm3/1000 str. +-: 1.5
Volt : 12	+ Spread
	+ cm3/1000 strokes : 5.0
Aneroid pressure	- Check tolerance
hPa :	+ cm3/1000s. + : 1.5
	+ Spread
LDA/	+ cm3/1000 strokes : 5.0
HBA stroke mm : 7.2	
Detect and an advantage AOFR	IDLE DELIVERY
Rated speed rpm : 1950	T Detect and the SEO
Del. quantity	+ Rated speed rpm : 550
cm3/1000 strokes : 41.5	+ Del. quantity
Tolerance cm3/1000 str. → : 1.2	+ cm3/1000 strokes : 3.0  Tolerance
Check tolerance	+ cm3/1000 str. + : 3.0
cm3/1000s, +-: 2.5	+ Check tolerance
Shutoff solenoid	+ cm3/1000s. +: 3.0
Volt : 12	+ Shutoff solenoid
VO(C	+ Volt : 12
Rated speed rpm : 1700	1
Del. quantity	1
cm3/1000 strokes : 40.0	1
Tolerance	1
cm3/1000 str. +: 1.2	1
Check tolerance	
cm3/1000s. + : 2.5	+ EXHAUST-GAS RECIRCULATION
Shutoff solenoid	+
Volt : 12	+ Rated speed rpm : 1250
	+ Del. quantity
Rated speed rpm : 500	cm3/1000 strokes : 22.5
Del. quantity	+ Tolerance
cm3/1000 strokes : 28.5	+ cm3/1000 str. +-: 0.5
Tolerance	+ Check tolerance
cm3/1000 str. +: 0.2	+ cm3/1000s. +: 2.5
Check tolerance	+ Shutoff solenoid
cm3/1000s. + : 3.0	† Volt : 12
Shutoff solenoid	CTART TRANSITION
Volt : 12	+ START TRANSITION
	Rated speed rpm : 480
	+ Del. quantity
ELECTR. SHUTOFF	- cm3/1000 strokes : 26.0
CONTROL LEVER, IDLE STOP	Tolerance
CONTROL LEVERY IDEL OTO	+ cm3/1000 str. + : 6.0
Rated speed rpm : 425	+ Shutoff solenoid
Del. quantity	+ Volt : 12
cm3/1000 strokes : 1.5	1
Tolerance	+
cm3/1000 str. + : 1.5	Rated speed rpm : 300
Check tolerance	+ Del. quantity
cm3/1000s. +-: 1.5	+ cm3/1000 strokes : 48.0
Spread	+ Tolerance
cm3/1000 strokes : 5.0	+ cm3/1000 str. +-: 15.0
	+ Shutoff solenoid
FULL-LOAD STOP CONTROL LEVER	+ Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.2

Dimension K mm : 2,8
Tolerance mm + : 0,1
Dimension KF mm : 8,4
Tolerance mm + : 0,2
Dimension MS mm : 1,8
Tolerance mm + : 0,2

MICROSWITCH SET

: ARF 20,0

CONTROL LEVER POSITION SET

Control lever

position YA mm : 41.0..43.5

Control lever

position Y8 mm : 63.0..75,0

# Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96 Test oil : ISO 4113

Part no. : 0 460 414 139 Pump designation : VE4/11F2000R624-3

Customer—spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 114

Opening pressure

bar : 207 Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52 Tolerance mm + : 0,05

Outlet : B KDEP1151

# INJECTION PUMP SETTING VALUES

## TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7

Tolerance mm +: 0.1

Shutoff solenoid

Volt : 12

# SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pomp
pressure bar : 7.4
Tolerance bar +: 0.3
Shutoff solenoid
Volt : 12

## FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150 Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 36.0 Del. quantity cm3/1000 strokes : 28.5 Tolerance cm3/1000 str. +: 0.5 Tolerance 0.2 cm3/1000 str. +-: Spread cm3/1000 strckes : 3.0 Shutoff solenoid Valt 12 Shutoff solenoid 12 Volt Check tolerance 4.0 cm3/1000s.

## IDLE SETTING

Rated speed rpm : 425 Del. quantity cm3/1000 strokes : 10.5 Tolerance cm3/1000 str. + :1.0 Shutoff solenoid Volt 12 Spread cm3/1000 strokes : 3.0 Check tolerance cm3/1000s.4.0

	+ Supply pomp
	pressure bar : 5.7 Tolerance bar + : 0.3
FULL-LOAD SPEED REGULATION	Shutoff solenoid Volt : 12
Rated speed rpm : 2200 Del. quantity	Rated speed rpm : 1150 Supply pomp
cm3/1000 strokes : 26.0 Tolerance	pressure bar : 7.2 Tolerance bar +: 0.3
cm3/1000 str. + : 1.0 Shutoff solenoid Yolt : 12	Shutoff solenoid Volt : 12
STARTING FUEL DELIVERY	OVERFLOW QUANTITY
Rated speed rpm : 100	Rated speed rpm : 500 Overflow quantity
Del. quentity cm3/1000 strokes : 45.0	T ccm/10s : 119.4 Tolerance
Tolerance cm3/1000 str. +-: 20.0	ccm/10s +: 22.2
Shutoff solenoid Volt : 12	theck tolerance ccm/10s the cc
	volt : 12
	Rated speed rpm : 1950 Overflow quantity
INJECTION-PUMP TEST SPECIFICATIONS	ccm/10s : 150.0 Tolerance
TIMING DEVICE CHARACTERISTIC	+ ccm/10s + : 34.7
Rated speed rpm : 2000	Check tolerance ccm/10s +: 34.7
SV travel mm : 6.4 Tolerance mm + : 0.4	
SV travel mm : 6.4 Tolerance mm +-: 0.4 Check tolerance mm +-: 0.9	ccm/10s +: 34.7 Shutoff solenoid
SV travel mm : 6.4 Tolerance mm + : 0.4 Check	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200
SV travel mm : 6.4 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12 Rated speed rpm : 1000	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance
SV travel mm : 6.4 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Voit : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm; +- : 0.4	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance
SV travel mm : 6.4 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.9	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid
SV travel mm : 6.4 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm; + : 0.4 Check	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12
SV travel mm : 6.4 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity
SV travel mm : 6.4 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm; +-: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance
SV travel mm : 6.4 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC	ccm/10s + : 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. + : 1.0 Check tolerance cm3/1000s. + : 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0
SV travel mm : 6.4 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm; +-: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0	ccm/10s +: 34.7 Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 12.0 Check tolerance cm3/1000s. +: 6.0 Shutoff solenoid

		•				
Tolerance		+	Rated speed rpm	:	425	
cm3/1000 str. +-	: 2.5	+	Del. quantity			
Check tolerance		+	cm3/1000 strokes	:	1.5	
cm3/1000s. +-	: 2.5	<del>1</del>	Tolerance			
Shutoff solenoid	• • • • • • • • • • • • • • • • • • • •	1	cm3/1000 str. +		1.5	
	: 12	Ţ		•	1.0	
Volt	: 12	Ť	Spread			
_		+	cm3/1000 strokes	;	5.0	
Aneroid pressure		+	Check tolerance			
hPa	:	+	cm3/1000s. +-	:	1.5	
		1	Spread	•		
LDA/		1	cm3/1000 strokes		5.0	
	: 7.2	Т	CIIDA 1000 STLOKES	•	ال. ت	
HBA stroke mm	: 7.2	Ť				
		+	IDLE DELIVERY			
Rated speed rpm	: 1950	+				
Del. quantity		+	Rated speed rpm	:	550	
cm3/1000 strokes	: 41.5	7	Del. quantity	•		
Tolerance	. 41.5	- 1	cm3/1000 strokes		3.0	
	. 4.5	T		•	5.0	
cm3/1000 str. +-	: 1.2	Ť	Tolerance			
Check tolerance		+	cm3/1000 str. +-	:	3.0	
cm3/1000s. +-	: 2.5	+	Check tolerance			
Shutoff solenoid		+	cm3/1000s. +-	:	3.0	
Volt	: 12	Ĺ	Shutoff solenoid	•	010	
VOCC	•	T			12	
Back and a second as	4700	Ť	Volt	•	12	
Rated speed rpm	: 1700	†				
Del. quantity		+				
cm3/1000 strokes	: 40.0	+				
Tolerance		+				
cm3/1000 str. +-	: 1.2	1				
		T				
Check tolerance	0.5	†				
cm3/1000s. +-	: 2.5	+	EXHAUST-GAS RECIRC	TUL AT	FION	
	•	(	C			
Shutoff solenoid		+				
		‡				
Shutoff solenoid Volt	: 12	<u> </u>	Rated speed rpm		1250	
Volt	: 12	†	Rated speed rpm Del. quantity	•	1250	
Volt Rated speed rpm	: 12	+	Rated speed rpm Del. quantity cm3/1000 strokes	•	1250	
Volt Rated speed rpm Del. quantity	: 12 : 500	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	:	1250 22.5	
Volt Rated speed rpm Del. quantity cm3/1000 strokes	: 12 : 500	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	:	1250	
Volt Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 12 : 500 : 28.5	† † † †	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	:	1250 22.5 0.5	
Volt Rated speed rpm Del. quantity cm3/1000 strokes	: 12 : 500 : 28.5	† † † †	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	:	1250 22.5	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	: 12 : 500 : 28.5 : 0.2	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-		1250 22.5 0.5	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	: 12 : 500 : 28.5 : 0.2	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid		1250 22.5 0.5 2.5	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-		1250 22.5 0.5	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt		1250 22.5 0.5 2.5	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid		1250 22.5 0.5 2.5	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt START TRANSITION	•	1250 22.5 0.5 2.5 12	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000S. +- Shutoff solenoid Volt START TRANSITION Rated speed rpm	•	1250 22.5 0.5 2.5 12	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt START TRANSITION	•	1250 22.5 0.5 2.5 12	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	: 12 : 500 : 28.5 : 0.2 : 3.0	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION Rated speed rpm Del. quantity	•	1250 22.5 0.5 2.5 12	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  ELECTR. SHUTOFF	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes	•	1250 22.5 0.5 2.5 12	
Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance		1250 22.5 0.5 2.5 12 480 26.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDL	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-		1250 22.5 0.5 2.5 12	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDL Rated speed rpm	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Shutoff solenoid		1250 22.5 0.5 2.5 12 480 26.0 6.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDL Rated speed rpm Del. quantity	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12 	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-		1250 22.5 0.5 2.5 12 480 26.0	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDL Rated speed rpm Del. quantity	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12 	+++++++++++++++++++++++++++++++++++++++	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Shutoff solenoid		1250 22.5 0.5 2.5 12 480 26.0 6.0	
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Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDL Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Spread cm3/1000 strokes	: 12 : 500 : 28.5 : 0.2 : 3.0 : 12  E STOP : 425 : 1.5 : 1.5 : 1.5 : 5.0		Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Shutoff solenoid Volt  Rated speed rpm Del. quantity cm3/1000 str. + Shutoff solenoid Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 str. + Shutoff solenoid		1250 22.5 0.5 2.5 12 480 26.0 6.0 12 300 48.0 15.0	
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# ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm 7.2

HBA stroke mm : 2,8
Tolerance mm +: 0,1 Dimension KF mm : 8,4 Tolerance mm + : 0,2 Dimension MS mm : 1,8 Tolerance mm + : 0,2

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION SET

Control lever

: 41,0..44,0 position YA mm

Control lever

: 63,0..75,0 position YB mm

# Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.96 Test oil : ISO 4113

Part no. : 0 460 426 254 Pump designation : VE6/12F1250R671

Customer—spec. information
Customer : CUMMINS
Motor : 6 BTAA
Power KW : 96.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +-: 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 109

Opening pressure

bar : 207 Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 840

#### REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,3

Tolerance mm + : 0.02(0.06)

Outlet : D

# INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1100 Aneroid pressure

hPa : 1000

Setting mm : 1.8
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 24

#### SUPPLY PUMP PRESSURE

Rated speed rpm : 1100 Aneroid pressure

hPa : 1000 Supply pomp

pressure bar : 7.0 Tolerance bar +: 0.3

Shutoff solenoid Volt : 24

#### FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 83.0
Tolerance

cm3/1000 str. +: 0.5

Spread

cm3/1000 strokes : 5.0 Check tolerance

cm3/1000s. : 5.0 Shutoff solenoid

Volt : 24

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

0.5

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 61.0 Tolerance

cm3/1000 str. +-:

Spread cm3/1000 strokes : 5.0

Shutoff solenoid

Volt : 24

Check tolerance cm3/1000s. : 6.0

Check tolerance cm3/1000s. : 5.0	Rated speed rpm : 1000 Aneroid pressure
IDLE SETTING	+ hPa : 1000
	SV travel mm : 1.0
Rated speed rpm : 370	Tolerance mm +: 0.6
Del. quantity	Check
	tolerance mm +: 0.6
Tolerance	+ Shutoff solenoid
cm3/1000 str. + : 2.0	+ Volt : 24
Shutoff solenoid ·	+
Volt : 24	Rated speed rpm : 450
Spread	
cm3/1000 strokes : 5.5	SV travel mm : 2.1
Check tolerance	Tolerance mm +: 0.5
cm3/1000s. : 7.0	+ Check
•	tolerance mm +: 0.7
•	- Shutoff solenoid
•	+ Volt : 24
•	+
FULL-LOAD SPEED REGULATION	KSB/AFB Volt : 24
Rated speed rpm : 1400	SUPPLY PUMP PRESSURE CHARACTERISTIC
Pressure hPa : 1000	TOOLET LOUIL LUFOOOUT CHANACITUTOITE
	T 250
Del. quantity	Rated speed rpm : 1250
cm3/1000 strokes : 36.5	+ Aneroid pressure
Tolerance	hPa : 1000
cm3/1000 str. +: 3.0	+ Supply pomp
Shutoff solenoid	pressure bar : 7.7
Volt : 24	Tolerance bar +: 0.3
	+ Shutoff solenoid
STARTING FUEL DELIVERY	+ Volt : 24
entitioned tops research	1
Rated speed rpm : 100	Rated speed rpm : 500
	Aneroid pressure
Del. quantity cm3/1000 strokes : 85.0	
Tolerance	+ Supply pomp
cm3/1000 str. +-: 15.0	pressure bar : 4.7
Shutoff solenoid	† Tolerance bar +-: 0.3
Volt : 24	- Shutoff solenoid
	+ Volt : 24
	+
	DVERFLOW QUANTITY
	Rated speed rpm : 500
THIRDTON DIMD TEST CONCLETCATIONS	The second secon
INJECTION-PUMP TEST SPECIFICATIONS	Overflow quantity
	+ ccm/10s : 59.7
TIMING DEVICE CHARACTERISTIC	† Tolerance
	+ ccm/10s +: 22.2
Rated speed rpm : 1250	+
Aneroid pressure	+ Check tolerance
hPa : 1000	+ ccm/10s +-: 22.2
	Shutoff solenoid
SV travel mm : 2.3	+ Volt : 24
Tolerance mm + : 0.4	1
Check	Rated speed rpm : 1250
	the state of the s
	Aneroid pressure
Shutoff solenoid	hPa : 1000
Volt : 24	Overflow quantity
•	+ ccm/10s : 83.3

T. I		1 6-1
Tolerance +:	27.7	+ Del. quantity + cm3/1000 strokes : 86.0
CCIH7 103	<b>L</b> ( ) (	Tolerance
Check tolerance		+ cm3/1000 str. + : 2.0
ccm/10s + :	27.7	- Check tolerance
Shutoff solenoid		+  cm3/1000s. + : 3.5
Volt :	24	Shutoff solenoid
		+ Volt : 24
DELIVERY AND BREAKAN	MAY CHARACTERISTIC	†
	4/00	+ Rated speed rpm : 500
Rated speed rpm :	1400	Aneroid pressure
Aneroid pressure	1000	† hPa : 1000 † Del. quantity
Del. quantity	1000	cm3/1000 strokes : 92.0
cm3/1000 strokes :	36.5	Tolerance
Tolerance		+ cm3/1000 str. $+$ : 5.0
cm3/1000 str. + :	3.0	+ Shutoff solenoid
Check tolerance	_	+ Volt : 24
cm3/1000s. +-:	8.0	†
Shutoff solenoid	24	Rated speed rpm : 850
Volt :	24	+ Aneroid pressure + hPa : 1000
Rated speed rpm :	1445	† hPa : 1000 † Del. quantity
Aneroid pressure	1773	cm3/1000 strokes : 83.0
hPa :	1000	Tolerance
Del. quantity		+ cm3/1000 str. $+$ : 0.5
cm3/1000 strokes :	17.0	+ Check tolerance
Check tolerance		+ cm3/1000s. $+$ : 3.0
cm3/1000s. +-:	15.0	+ Shutoff solenoid
Shutoff solenoid	24	+ Volt : 24
Volt :	24	T
		MECHANICAL SHUTOFF
Rated speed rpm :		MECHANICAL SHUTOFF
		MECHANICAL SHUTOFF  Rated speed rpm : 1250
Rated speed rpm : Aneroid pressure hPa : Del. quantity	1500	Rated speed rpm : 1250 Aneroid pressure
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	1500	Rated speed rpm : 1250 Aneroid pressure hPa : 1000
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	1500 1000 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +-:	1500 1000	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance	1500 1000 1.5 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +-: Check tolerance cm3/1000s. +-:	1500 1000 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid	1500 1000 1.5 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +-: Check tolerance cm3/1000s. +-:	1500 1000 1.5 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt : Rated speed rpm :	1500 1000 1.5 1.5 1.5	Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. +: 1.5 Check tolerance cm3/1000s. +: 1.5
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt : Rated speed rpm : Aneroid pressure	1500 1000 1.5 1.5 1.5 24	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. +: 1.5  Check tolerance  cm3/1000s. +: 1.5  Shutoff solenoid
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt : Rated speed rpm : Aneroid pressure hPa :	1500 1000 1.5 1.5 1.5	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity	1500 1000 1.5 1.5 1.5 24 600 300	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24  ELECTR. SHUTOFF
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +-: Check tolerance cm3/1000s. +-: Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	1500 1000 1.5 1.5 1.5 24 600 300	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000str. +-: Check tolerance cm3/1000s. +-: Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	1500 1000 1.5 1.5 1.5 24 600 300 72.0	Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + :	1500 1000 1.5 1.5 1.5 24 600 300	Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 300
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000str. +-: Check tolerance cm3/1000s. +-: Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	1500 1000 1.5 1.5 1.5 24 600 300 72.0	Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000str. +-: Check tolerance cm3/1000s. +-: Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +-: Check tolerance cm3/1000s. +-: Shutoff solenoid	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5 4.0	Rated speed rpm : 1250  Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Shutoff solenoid Volt : 24  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 300 Del. quantity cm3/1000 strokes : 1.5 Tolerance
Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000str. + : Check tolerance cm3/1000s. + : Shutoff solenoid Volt :  Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. + : Check tolerance cm3/1000s. + :	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24   ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 300  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Check tolerance cm3/1000s. +: Shutoff solenoid Volt :	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5 4.0 24	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24   ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 300  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000s. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 strokes: Shutoff solenoid Volt  Rated speed rpm: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm:	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5 4.0 24	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24   ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 300  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000s. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 strokes: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm Aneroid pressure	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5 4.0 24 1250	Rated speed rpm : 1250  Aneroid pressure hPa : 1000  Del. quantity cm3/1000 strokes : 1.5  Tolerance cm3/1000str. +: 1.5  Check tolerance cm3/1000s. +: 1.5  Shutoff solenoid Volt : 24   ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 300 Del. quantity cm3/1000 strokes : 1.5  Tolerance cm3/1000 str. +: 1.5  Check tolerance cm3/1000s. +: 1.5
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000s. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 strokes: Shutoff solenoid Volt  Rated speed rpm: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm:	1500 1000 1.5 1.5 1.5 24 600 300 72.0 0.5 4.0 24	Rated speed rpm : 1250  Aneroid pressure  hPa : 1000  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000str. + : 1.5  Check tolerance  cm3/1000s. + : 1.5  Shutoff solenoid  Volt : 24   ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 300  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5  Check tolerance

	: 1.5
IDLE DELIVERY  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	: 1.5 : 1.5
START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Shutoff solenoid Volt	
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  ASSEMBLY AND ADJUS	: 20.0 : 24
Dimension K mm Tolerance mm + Dimension KF mm MS1 dimension mm Tolerance mm +-	: 0,1 : KOT
CONTROL LEVER POST	ITION

Control Lever position YA mm : 34,8..38,8

Control Lever position YB mm : 43,0..48,6

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18.11.96 Test cil : ISO 4113

Part no. : 0 460 484 113 Pump designation : VE4/8F2300R691

Customer-spec. information

Customer : FIAT-AUTO

Motor : M708HT17..T-soft

Power KW : 48.0

# TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +-: 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 022

Opening pressure

bar : 130 Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x Length mm : 450

# REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,9 Outlet : A

#### INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.9
Tolerance mm + : 0.2
Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

#### SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pomp
pressure bar : 5.
Tolerance bar +: 0.

Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500 Del. quantity

cm3/1000 strokes : 35.2 Tolerance

cm3/1000 str. +-: 0.5

Spread cm3/1000 strokes : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

#### IDLE SETTING

Rated speed rpm : 450 Del. quantity

cm3/1000 strokes : 12.6

Tolerance

cm3/1000 str. + : 2.0 Shutoff solenoid

Volt : 12 Spread

cm3/1000 strokes : 2.5 Check tolerance

cm3/1000s. : 2.5

KSB/AFB Volt : 12

	ol I
†	- Check
FIRE LOAD COURS DECLINATION	tolerance mm + : 2.0
FULL-LOAD SPEED REGULATION	- Shutoff solenoid - Volt : 12
Rated speed rpm : 2400	- Volt : 12
Rated speed rpm : 2400 +	- - Rated speed rpm : 700
cm3/1000 strokes : 31.6	- Rated speed rpm : 700
Tolerance	- SV travel mm : 2.5
cm3/1000 str. +: 3.0	- Tolerance mm +-: 1.5
Shutoff solenoid	- Check
Volt : 12	tolerance mm + : 2.0
, va.	- Shutoff solenoid
KSB/AFB Volt : 12	- Volt : 12
NODIALO VOCC . IE	. 12
STARTING FUEL DELIVERY	- SUPPLY PUMP PRESSURE CHARACTERISTIC
	- The state of the
Rated speed rpm : 100	Rated speed rpm : 2000
Del. quantity	- Supply pomp
cm3/1000 strokes : 50.0	- pressure bar : 7.4
Tolerance	- Tolerance bar + : 0.3
cm3/1000 str. + : 15.0	- Shutoff solenoid
Shutoff selenoid	- Volt : 12
Volt : 12	
4	- KSB/AFB Volt : 12
KSB/AFB Volt : 12	
4	- Rated speed rpm : 900
4	- Supply pomp
4	pressure bar : 4.1
4	Tolerance bar + : 0.3
	- Shutoff solenoid
INJECTION-PUMP TEST SPECIFICATIONS	- Volt : 12
-	
TIMING DEVICE CHARACTERISTIC	- KSB/AFB Volt : 12
+	•
Rated speed rpm : 2000	
Rated speed rpm : 2000	- OVERFLOW QUANTITY
+	
SV travel mm : 7.9	- Rated speed rpm : 2200
SV travel mm : 7.9 Tolerance mm + : 0.4	- Rated speed rpm : 2200 - Overflow quantity
SV travel mm : 7.9 Tolerance mm +: 0.4 Check	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1
SV travel mm : 7.9 Tolerance mm + : 0.4 Check tolerance mm + : 0.7	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1
SV travel mm : 7.9 Tolerance mm + : 0.4 Check tolerance mm + : 0.7	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7 Check tolerance
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s +-: 27.7  Check tolerance ccm/10s +-: 27.7
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s +- : 27.7  Check tolerance ccm/10s +- : 27.7 Shutoff solenoid
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s +-: 27.7  Check tolerance ccm/10s +-: 27.7
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 12
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s +- : 27.7  Check tolerance ccm/10s +- : 27.7 Shutoff solenoid
SV travel mm : 7.9 Tolerance mm + : 0.4 Check tolerance mm + : 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm + : 0.4	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7 Check tolerance ccm/10s + : 27.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12 Rated speed rpm : 700
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7 Check tolerance ccm/10s + : 27.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3 Tolerance
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s + : 27.7  Check tolerance ccm/10s + : 27.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3 Tolerance ccm/10s + : 16.6
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12	Rated speed rpm : 2200 Overflow quantity ccm/10s : 86.1 Tolerance ccm/10s +-: 27.7  Check tolerance ccm/10s +-: 27.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3 Tolerance ccm/10s +-: 16.6  Check tolerance
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12	Rated speed rpm : 2200  Overflow quantity ccm/10s : 86.1  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3  Tolerance ccm/10s +: 16.6  Check tolerance ccm/10s +: 16.6
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 450	Rated speed rpm : 2200  Overflow quantity ccm/10s : 86.1  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3  Tolerance ccm/10s +: 16.6  Check tolerance ccm/10s +: 16.6  Shutoff solenoid
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 450  SV travel mm : 1.8	Rated speed rpm : 2200  Overflow quantity ccm/10s : 86.1  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3  Tolerance ccm/10s +: 16.6  Check tolerance ccm/10s +: 16.6
SV travel mm : 7.9 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 900  SV travel mm : 1.1 Tolerance mm +: 0.4 Check tolerance mm +: 0.7 Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 450	Rated speed rpm : 2200  Overflow quantity ccm/10s : 86.1  Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  KSB/AFB Volt : 12  Rated speed rpm : 700 Overflow quantity ccm/10s : 58.3  Tolerance ccm/10s +: 16.6  Check tolerance ccm/10s +: 16.6  Shutoff solenoid

E02

KSB/AFB Volt : 12	- KSB/AFB Volt : 12
DELIVERY AND BREAKAWAY CHARACTERISTIC	- Rated speed rpm : 1500 - Del. quantity
Rated speed rpm : 2400 Del. quantity	- cm3/1000 strokes : 35.2 - Tolerance
cm3/1000 strokes : 31.6	- cm3/1000 str. + : 0.5 - Check tolerance
cm3/1000 str. +-: 3.0	- cm3/1000s. + : 2.0
Check tolerance cm3/1000s. + : 5.0	- Shutoff solenoid - Volt : 12
Shutoff solenoid	•
KSB/AFB Volt : 12	- ELECTR. SHUTOFF - CONTROL LEVER, IDLE STOP
Rated speed rpm : 2700	- CONTROL LEVER, THE STOP
Del. quantity cm3/1000 strokes : 8.3	- Rated speed rpm : 450 - Del. guantity
Check tolerance cm3/1000s. +: 5.0	- cm3/1000 strokes : 1.5 - Tolerance
Shutoff solenoid Volt : 12	- cm3/1000 str. + : 1.5 - Check tolerance
KSB/AFB Volt : 12	- cm3/1000s. +-: 1.5 - Spread
Rated speed rpm : 2900	- cm3/1000 strokes : 5.0
Del. quantity cm3/1000 strokes : 1.5	- KSB/AFB Volt : 12
Tolerance cm3/1000 str. +: 1.5	FULL-LOAD STOP CONTROL LEVER
Check tolerance cm3/1000s. +: 1.5	- Rated speed rpm : 450 - Del. quantity
Shutoff solenoid Volt : 12	- cm3/1000 strokes : 1.5 - Tolerance
	- cm3/1000 str. +-: 1.5 - Spread
+	- cm3/1000 strokes : 5.0
Rated speed rpm : 2200  Del. quantity	- Check tolerance - cm3/1000s. +-: 1.5
cm3/1000 strokes : 38.7 Tolerance	- Spread - cm3/1000 strokes : 5.0
cm3/1000 str. + : 1.5 Check tolerance	- KSB/AFB Volt : 12
cm3/1000s. +: 2.3 + Shutoff solenoid -	- IDLE DELIVERY
Volt : 12	- Rated speed rpm : 550
KSB/AFB Volt : 12	- Del. quantity - cm3/1000 strokes : 2.0
Rated speed rpm : 700  Del. quantity	- Tolerance - cm3/1000 str. +-: 2.0
cm3/1000 strokes : 34.6 Tolerance	- Check tolerance - cm3/1000s. +-: 2.0
cm3/1000 str. + : 1.5 Check tolerance	- Shutoff solenoid - Volt : 12
cm3/1000s. + : 2.3 Shutoff solenoid	- KSB/AFB Volt : 12
Volt : 12 +	-

Rated speed rpm	:	400
Del. quantity cm3/1000 strokes	:	22.6
Tolerance cm3/1000 str. +- Check tolerance	:	2.5
cm3/1000s. +-	:	4.5
Volt	:	12
KSB/AFB Volt	:	12

# EXHAUST-GAS RECIRCULATION

Rated speed rpm Del. quantity	:	1000
cm3/1000 strokes	:	9.3
Tolerance cm3/1000 str. +-	:	1.0
Check tolerance		2.5
cm3/1000s. +- Shutoff solenoid	•	2.5
Volt	:	12
KSB/AFB Volt	:	12

# START TRANSITION

Rated speed rpm Del. quantity	:	575
cm3/1000 strokes	:	34.0
Tolerance cm3/1000 str. +- Shutoff solenoid	:	10.0
Volt	:	12
KSB/AFB Volt	:	12

Rated speed rpm	:	350
Del. quantity cm3/1000 strokes		58.0
Tolerance	٠	20.0
cm3/1000 str. +	:	10.0
Shutoff solenoid Volt		12
VOLC	•	12
KSR/AFR Vol+	•	12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension	Kn	nm	:	3,3
Tolerance	mm	+-	:	0,1
Dimension	KF	mm	:	6,0

Tolerance	mm	+	:	0,2
Dimension	MS	mm	:	1,3
Tolerance	mm	+	:	0,2

# POTENTIOMETER

SET

1. measurement		
voltage Volt	: :	5,0

1. measurement

voltage Volt : 1,41+-0,02

2. measurement

voltage Volt : ARF 12,0

# CONTROL LEVER POSITION SET

Control lever

position YA mm : 38,1..40,1

Control lever

position YB mm : 38,4..46,4

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96 Test oil : ISO 4113

Part no. : 0 460 414 141 Pump designation : VE4/11F2000R686

Customer—spec. information Customer : FORD

Motor : 2.5L-DI 70 PS Power KW : 51.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +-: 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35 Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 114

Opening pressure

bar : 207 Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

# REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,35 Tolerance mm + : 0,05

Outlet : B KDEP1151

#### INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm + : 0.1
Shutoff solenoid

Volt : 12

# SUPPLY PUMP PRESSURE

Rated speed rpm: : 1250
Supply pomp
pressure bar : 7.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150 Rated speed rpm 500 Del. quantity cm3/1000 strokes : 35.8 Del. quantity cm3/1000 strokes : 31.2 Tolerance cm3/1000 str. +-: 0.5Tolerance cm3/1000 str. +-: 0.2 Spread cm3/1000 strokes : 3.0 Shutoff solenoid 12 Volt Shutoff solenoid 12 Volt Check tolerance cm3/1000s.4.0

#### IDLE SETTING

Rated speed rpm 425 Del. quantity cm3/1000 strokes : 7.8 Tolerance cm3/1000 str. + :1.0 Shutoff solenoid Volt 12 Spread cm3/1000 strokes : 3.0 Check tolerance cm3/1000s.4.0

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1	- Supply pomp
Ţ	- pressure bar : 5.7
+	- Tolerance bar + : 0.3
<del> </del>	- Shutoff solenoid
FULL-LOAD SPEED REGULATION	- Volt : 12
Rated speed rpm : 2200	- Rated speed rpm : 1150
Del. quantity	- Supply pomp
cm3/1000 strokes : 31.5	pressure bar : 7.2
Tolerance	Tolerance bar +-: 0.3
cm3/1000 str. +: 1.0	- Shutoff solenoid
Shutoff solenoid	- Volt : 12
Volt : 12	OVERELON ONANTITY
STARTING FUEL DELIVERY	- OVERFLOW QUANTITY
OTANIZING FOCE DECEMENT	- Rated speed rpm : 500
Rated speed rpm : 100	- Overflow quantity
Del. quantity	- ccm/10s : 119.4
cm3/1000 strokes : 48.2	Tolerance
Tolerance	- ccm/10s +: 16.6
cm3/1000 str. + : 20.0	Charle talamana
Shutoff solenoid Volt : 12	- Check tolerance - ccm/10s + : 16.6
. 12	- Shutoff solenoid
	Volt : 12
+	
+	- Rated speed rpm : 1950
	- Overflow quantity
INJECTION—PUMP TEST SPECIFICATIONS +	- ccm/10s : 150.0
+	- Tolerance
TIMING DEVICE CHARACTERISTIC	
+	Tolerance ccm/10s +: 27.7 Check tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000	Tolerance - ccm/10s +: 27.7 - Check tolerance - ccm/10s +: 27.7
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4	Tolerance - ccm/10s +: 27.7 - Check tolerance - ccm/10s +: 27.7
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm : 0.9	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5 Tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5 Tolerance cm3/1000 str. +: 1.0
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5 Tolerance
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm \( \tilde{-} : 0.4 Check tolerance mm \( \tilde{-} : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm \( \tilde{-} : 0.4	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5 Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm \( \top : 0.4 Check tolerance mm \( \top : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm \( \top : 0.4 Check tolerance mm \( \top : 0.4 Check tolerance mm \( \top : 0.9	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000s +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0 Shutoff solenoid
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000s +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar + : 0.3 Shutoff solenoid	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0 Shutoff solenoid Volt : 12
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm +: 0.4 Check tolerance mm +: 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar +: 0.3	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000s +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2400
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 2000  SV travel mm : 6.4 Tolerance mm : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  Rated speed rpm : 1000  SV travel mm : 1.5 Tolerance mm + : 0.4 Check tolerance mm + : 0.9 Shutoff solenoid Volt : 12  SUPPLY PUMP PRESSURE CHARACTERISTIC  Rated speed rpm : 2000 Supply pomp pressure bar : 9.0 Tolerance bar + : 0.3 Shutoff solenoid	Tolerance ccm/10s +: 27.7  Check tolerance ccm/10s +: 27.7  Shutoff solenoid Volt : 12  DELIVERY AND BREAKAWAY CHARACTERISTIC  Rated speed rpm : 2200 Del. quantity cm3/1000 strokes : 31.5  Tolerance cm3/1000 str. +: 1.0 Check tolerance cm3/1000s. +: 5.0 Shutoff solenoid Volt : 12  Rated speed rpm : 2300 Del. quantity cm3/1000 strokes : 18.4 Check tolerance cm3/1000s. +: 6.0 Shutoff solenoid Volt : 12

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Tolerance		+ Rated speed rpm : 425
cm3/1000 str. +-	: 2.5	+ Del. quantity
Check tolerance		+ cm3/1000 strokes : 1.5
cm3/1000s. +-	: 2.5	+ Tolerance
Shutoff solenoid		+ cm3/1000 str. $+-$ : 1.5
Volt	: 12	Spread
	· -	+ cm3/1000 strokes : 5.0
Aneroid pressure		+ Check tolerance
hFa	:	+ cm3/1000s. + : 1.5
.,, -		Spread
LDA/		+ cm3/1000 strokes : 5.0
HBA stroke mm	: 7,7	
	, .	IDLE DELIVERY
Rated speed rpm	: 1950	
Del. quantity	,,,,,	Rated speed rpm : 475
cm3/1000 strokes	: 43.8	+ Del. quantity
Tolerance		1 cm <sup>3</sup> /1000 strokes · 3 8
cm3/1000 str. +-	: 1.2	+ Tolerance
Check tolerance		+ cm3/1000 str. + : 3.0
cm3/1000s. +-	: 2.5	+ Check tolerance
Shutoff solenoid		+ cm3/1000s. +-: 3.0
Volt	: 12	+ Shutoff solenoid
		Tolerance
Rated speed rpm	: 1700	1
Del. quantity		<u></u>
cm3/1000 strokes	: 41.0	+
Tolerance	. ,,,,,	1
cm3/1000 str. +-	: 1.2	1
Check tolerance		
cm3/1000s. +-	: 2.5	+ EXHAUST-GAS RECIRCULATION
Shutoff solenoid		LAMAGO AND RECIRCOLATION
Volt	: 12	+ Rated speed rpm : 1250
VOCC	. 12	+ Del. quantity
Rated speed rpm	: 500	+ cm3/1000 strokes : 26.5
Del. quantity	. 300	Tolerance
cm3/1000 strokes	: 31.2	+ cm3/1000 str. + : 0.5
Tolerance		+ Check tolerance
cm3/1000 str. +	: 0.2	+ cm3/1000s. +-: 2.5
Check tolerance		+ Shutoff solenoid
cm3/1000s. +-	: 3.0	+ Volt : 12
Shutoff solenoid		1
Volt	: 12	+ START TRANSITION
- <del></del>	· ·	1
		Rated speed rpm : 480
		+ Del. quantity
ELECTR. SHUTOFF		+ cm3/1000 strokes : 28.6
CONTROL LEVER, IDL	_E STOP	+ Tolerance
Trition Barbity 476	· · · ·	+ cm3/1000 str. $+$ : 6.0
Rated speed rpm	: 425	+ Shutoff solenoid
Del. quantity		+ Volt : 12
cm3/1000 strokes	: 1.5	<u> </u>
Tolerance	• • • •	1
cm3/1000 str. +-	: 1.5	Rated speed rpm : 300
Check tolerance	• • • • • • • • • • • • • • • • • • • •	+ Del. quantity
cm3/1000S. +-	: 1.5	+ cm3/1000 strokes : 45.2
Spread	• • • • • • • • • • • • • • • • • • • •	Tolerance
cm3/1000 strokes	: 5.0	- cm3/1000 str. +-: 15.0
SINT I GOOD BELONES		+ Shutoff solenoid
FULL-LOAD STOP COM	NTROL LEVER	Volt : 12
TOLL LOAD STOP CO	***************************************	1
		<b>'</b>

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7,7
Dimension K mm : 2,8
Tolerance mm + : 0,1
Dimension KF mm : 8,4
Tolerance mm + : 0,2
Dimension MS mm : 1,8

Tolerance mm + : 0,2

MICROSWITCH SET

: ARF 20,0

CONTROL LEVER POSITION SET

Control lever

position YA mm : 42,8..45,8

Control lever

position YB mm : 65,5..75,5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.11.96 : ISO 4113 Test oil

Part no. : 0 460 485 035 Pump designation : VE5/8F2100L746

Customer-spec. information Customer : VW : 2.4L SD Motor 55.0 Power KW

# TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C Tolerance °C

Overflow

restriction mm 0.55

0.35 Inlet press. bar : Tolerance bar +:

Test nozzle holde

: 1 688 901 000 assembly

Opening pressure

bar Tolerance bar + :

Test lines : 1 680 750 000

6.00 Outside diameter :

x inside diameter : 2.00 840 x length mm

REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

1500 Rated speed rpm :

4.3 Setting mm Tolerance mm +: 0.2 Shutoff solenoid

12 Volt

#### SUPPLY PUMP PRESSURE

Rated speed rpm : 1500 Supply pomp pressure bar 7.4 Tolerance bar + : 0.3 Shutoff solenoid Volt 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : 36.5 Tolerance cm3/1000 str. +-: 0.5 Spread cm3/1000 strokes : 2.0 Shutoff solenoid 12 Volt

# IDLE SETTING

Rated speed rpm 415 Del. quantity cm3/1000 strokes : 8.0 Tolerance cm3/1000 str. +-:1.0 Shutoff solenoid Volt 12 Spread cm3/1000 strokes : 2.0 Check tolerance cm3/1000s. 3.0

# FULL-LOAD SPEED REGULATION

2400 Rated speed rpm Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 str. + : 2.0 Shutoff solenoid 12

STARTING FUEL DELIVERY

Volt

Rated speed rpm : 100

Del. quantity +	Check
cm3/1000 strokes : 60.0	tolerance mm +-: 0.7
Tolerance	Shutoff solenoid
cm3/1000 str. +: 25.0	Volt : 12
Shutoff solenoid	vott ; 12
Volt : 12	SUPPLY PUMP PRESSURE CHARACTERISTIC
. 12	SOFFET FORF PRESSURE CHARACTERISTIC
$\mathbf{I}$	Rated speed rpm : 1790
$\mathbf{I}$	Supply pomp
LOAD-DEPENDENT START OF DELIVERY	pressure bar : 8.1
SETTING	Tolerance bar +: 0.3
1	Shutoff solenoid
DELIVERY DIFFERENCE	Volt : 12
JEELVENT DITTENENCE	, 12
Rated speed rpm : 1500	Rated speed rpm : 1100
Del. quantity	Supply pomp
cm3/1000 strokes : -7.0	pressure bar : 6.2
Tolerance	Tolerance bar +: 0.3
cm3/1000 str. +: 1.0	Shutoff solenoid
Shutoff solenoid	Volt : 12
Volt : 12	12
I	OVERFLOW QUANTITY
PRESSURE DIFFERENCE	CAPILIPAN MANIETT
-	Rated speed rpm : 2100
Rated speed rpm : 1500	Overflow quantity
Del. quantity	ccm/10s : 97.2
cm3/1000 strokes : -0.2	Tolerance
Tolerance	ccm/10s +-: 41.6
cm3/1000 str. + : 0.1	1110
Shutoff solenoid +	Check tolerance
Volt : 12 +	ccm/10s + : 55.5
1	Shutoff solenoid
TIMING-DEVICE TRAVEL DIFFERENCE +	Volt : 12
+	
Rated speed rpm : 1500	Rated speed rpm : 600
Del. quantity	Overflow quantity
cm3/1000 strokes : -1.2 +	ccm/10s : 63.8
Tolerance	Tolerance
cm3/1000 str. $+$ : 0.1	ccm/10s + : 22.2
Shutoff solenoid +	
Volt : 12 +	Check tolerance
+	ccm/10s +-: 34.7
	Shutoff solenoid
INJECTION-PUMP TEST SPECIFICATIONS	Volt : 12
+	
TIMING DEVICE CHARACTERISTIC +	DELIVERY AND BREAKAWAY CHARACTERISTIC
4700	2/00
Rated speed rpm : 1790 +	Rated speed rpm : 2400
7	Del. quantity
SV travel mm : 6.3	cm3/1000 strokes : 12.0
Tolerance mm +-: 0.4	Tolerance
Check + tolerance mm +: 0.7	cm3/1000 str. +-: 2.0 Check tolerance
	cm3/1000s. +-: 4.0
Shutoff solenoid + Volt : 12 +	Shutoff solenoid
Volt : 12	
Peted eneed nom · 1100	Volt : 12
Rated speed rpm : 1100	Rated speed rpm : 2300
SV travel mm : 1.6	Del. quantity
Tolerance mm +-: 0.4	cm3/1000 strokes : 22.0
Total and the min Total and T	CIII/ 1000 311 0VC3 " CC10

Tolerance	Spread
cm3/1000 str. +: 5.0	+ cm3/1000 strokes : 5.0
Check tolerance	+
cm3/1000s. + : 6.0	+ FULL-LOAD STOP CONTROL LEVER
Shutoff solenoid	+
Volt : 12	Rated speed rpm : 415
	+ Del. quantity
Rated speed rpm : 2600	- cm3/1000 strokes : 1.5
Del. quantity	+ Tolerance
cm3/1000 strokes : 3.0	cm3/1000 str. +: 1.5
Tolerance	+ Spread
cm3/1000 str. +: 3.0	+ cm3/1000 strokes : 5.0
Check tolerance	+ Check tolerance
cm3/1000s. + : 3.0	+ cm3/1000s. $+$ : 1.5
Shutoff solenoid	+ Spread
Volt : 12	+ cm3/1000 strokes : 5.0
	1
Rated speed rpm : 2100	1
Del. quantity	1
cm3/1000 strokes : 30.5	1
Tolerance	1
cm3/1000 str. +: 1.0	T
Check tolerance	CHECKING LOAD DEPENDENT
	+ CHECKING LOAD-DEPENDENT
cm3/1000s. +: 2.2	START OF DELIVERY
Shutoff solenoid	<b>†</b>
Volt : 12	+ DELIVERY DIFFERENCE
	†
Rated speed rpm : 600	+ Rated speed rpm : 1500
Del. quantity	+ Del. quantity
cm3/1000 strokes : 34.8	+ cm3/1000 strokes : -10.5
Tolerance	+ Tolerance
cm3/1000 str. +-: 1.5	+ cm3/1000 str. $+$ : 3.0
Check tolerance	+ Check tolerance
cm3/1000s. + : 3.0	+ cm3/1000s. +-: 4.0
Shutoff solenoid	+ Shutoff solenoid
Volt : 12	Volt : 12
voct : ic	T VOCC : 12
Dated aread was a 1350	TIMING ACUTOR TO ME! ATECORNOR
Rated speed rpm : 1250	TIMING-DEVICE TRAVEL DIFFERENCE
Del. quantity	1500
cm3/1000 strokes : 36.5	+ Rated speed rpm : 1500
Tolerance	+ Del. quantity
cm3/1000 str. + : 0.5	+ cm3/1000 strokes : -1.2
Check tolerance	+ Tolerance
cm3/1000s. +: 2.2	+ cm3/1000 str. $+$ : 0.1
Shutoff solenoid	+ Check tolerance
Volt : 12	+ cm3/1000s. $+$ : 0.1
	+ Shutoff solenoid
	+ Volt : 12
	+
ELECTR. SHUTOFF	+ DELIVERY DIFFERENCE
CONTROL LEVER, IDLE STOP	
AALLINAM MERETIN WARM ALAL	Rated speed rpm : 1500
Rated speed rpm : 415	Del. quantity
	- cm3/1000 strokes : 1.5
Del. quantity	
cm3/1000 strokes : 1.5	+ Tolerance
Tolerance	+ cm3/1000 str. +: 1.5
cm3/1000 str. + : 1.5	+ Check tolerance
Check tolerance	+ cm3/1000s. +-: 1.5
cm3/1000s. +-: 1.5	+ Shutoff solenoid
	+ Volt : 12

# PRESSURE DIFFERENCE

Rated speed rpm : 1500

Supply pomp

pressure bar : -1.0 Tolerance bar + : 0.2

Shutoff solenoid

Volt : 12

#### TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500 Tolerance mm + : 0.2

Check

tolerance mm +: 0.6

Shutoff solenoid

Volt : 12

Rated speed rpm : 180

Del. quantity

cm3/1000 strokes : 60.0

Tolerance

cm3/1000 str. + : 25.0

Shutoff solenoid

Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3 Tolerance mm + : 0,1 Dimension KF mm : 5,8

Tolerance mm +: 0,2

Dimension MS mm : 1,4 Tolerance mm + : 0,2

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 09.12.96 Test oil : ISO 4113

: 0 460 484 135 Part no. Pump designation: VE4/8F2300R425-17

Customer-spec. information

: PSA Customer

: XUD9AY-L3 Cit.ZX Motor

Power KW 51.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C 45 Tolerance °C + :

Overflow

restriction mm 0.55

0.35 Inlet press. bar : Tolerance bar +-:

Test nozzle holde

: 1 688 901 022 assembly

Opening pressure

130 Tolerance bar +-: 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00 x length mm 450 :

REMARKS

#### INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm Tolerance mm + : 0.2 Shutoff solenoid 12

Volt

## SUPPLY PUMP PRESSURE

Rated speed rpm : 1250 Supply pomp

pressure bar 6.0 Tolerance bar +-: 0.3

Shutoff solenoid

Volt 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250 Del. quantity

cm3/1000 strokes : 30.2

Tolerance

cm3/1000 str. + :0.5

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

12 Volt

# HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 5.0

Tolerance

cm3/1000 str. +-:0.5

Shutoff solenoid

12 Volt

#### IDLE DELIVERY

Rated speed rpm 400

Del. quantity cm3/1000 strokes :

13.0

Tolerance

cm3/1000 str. + :1.0

Spread

cm3/1000 strokes : 2.0

Shutoff solenoid

12 Volt

#### HIGH IDLE SETTING

Rated speed rpm 475

Del. quantity

cm3/1000 strokes : 9.5

Tolerance +	
cm3/1000 str. +-: 1.0	
Shutoff solenoid	INJECTION-PUMP TEST SPECIFICATIONS
Volt : 12	TIMING DEVICE CHARACTERISTIC
FULL-LOAD SPEED REGULATION	
Rated speed rpm : 2650	Rated speed rpm : 2000
Del. quantity	SV travel mm : 7.6
cm3/1000 strokes : 11.0	Tolerance mm -: 0.4
Tolerance + : 2.0 +	Check tolerance mm +-: 0.7
Shutoff solenoid	Shutoff solenoid
Volt : 12	Volt : 12
1	Rated speed rpm : 800
SET GRADUATED STARTING DELIVERY	
CONTROL LEVER, IDLE STOP	SV travel mm : 0.8
Rated speed rpm : 100	Tolerance mm +-: 0.4 Check
Del. quantity	tolerance mm + : 0.7
cm3/1000 strokes : 47.0	Shutoff solenoid
Tolerance + : 1.0 +	Volt : 12
Shutoff solenoid	SUPPLY PUMP PRESSURE CHARACTERISTIC
Volt : 12	Poted speed speed 2200
I	Rated speed rpm : 2200 Supply pomp
LOAD-DEPENDENT START OF DELIVERY	pressure bar : 8.5
SETTING	Tolerance bar +-: 0.3
DELIVERY DIFFERENCE	Shutoff solenoid Volt : 12
+	
Rated speed rpm : 1250 + Del. quantity +	Rated speed rpm : 500 Supply pomp
T14000	
cm3/1000 strokes : -6.0	pressure bar : 3.6
Tolerance	pressure bar : 3.6 Tolerance bar + : 0.3
Tolerance + : 1.0	pressure bar : 3.6
Tolerance	pressure bar : 3.6 Tolerance bar + : 0.3 Shutoff solenoid Volt : 12
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt: 12	pressure bar : 3.6 Tolerance bar + : 0.3 Shutoff solenoid
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE	pressure bar : 3.6 Tolerance bar + : 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE	pressure bar : 3.6 Tolerance bar + : 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +-: 0.1	pressure bar : 3.6 Tolerance bar +: 9.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12	pressure bar : 3.6 Tolerance bar +: 9.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE  Rated speed rpm : 1250	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12  Rated speed rpm : 500
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12  Rated speed rpm : 500 Overflow quantity ccm/10s : 63.8
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -1.0 Tolerance	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12  Rated speed rpm : 500 Overflow quantity ccm/10s : 63.8 Tolerance
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -1.0 Tolerance cm3/1000 str. +: 0.1	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12  Rated speed rpm : 500 Overflow quantity ccm/10s : 63.8
Tolerance cm3/1000 str. +: 1.0 Shutoff solenoid Volt : 12  PRESSURE DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -0.2 Tolerance cm3/1000 str. +: 0.1 Shutoff solenoid Volt : 12  TIMING-DEVICE TRAVEL DIFFERENCE  Rated speed rpm : 1250 Del. quantity cm3/1000 strokes : -1.0 Tolerance	pressure bar : 3.6 Tolerance bar +: 0.3 Shutoff solenoid Volt : 12  OVERFLOW QUANTITY  Rated speed rpm : 2200 Overflow quantity ccm/10s : 97.2 Tolerance ccm/10s +: 41.6  Check tolerance ccm/10s +: 55.5 Shutoff solenoid Volt : 12  Rated speed rpm : 500 Overflow quantity ccm/10s : 63.8 Tolerance

	1	Del. quantity
Check tolerance	Ţ	cm3/1000 strokes : 30.2
ccm/10s + :	34.7	Tolerance
Shutoff solenoid	t +	cm3/1000 str. + : 0.5
Volt :	12	Check tolerance cm3/1000s. + : 2.2
DELIVERY AND BREAKAWA	V CHADACTEDISTIC I	Shutoff solenoid
DELIVERY MAD BREAKAWA		Volt : 12
Rated speed rpm :	2650	
Del. quantity	14.0	MEGLIANIZ GAL CHUTOEF
cm3/1000 strokes : Tolerance	11.0	MECHANICAL SHUTOFF
cm3/1000 str. +-:	2.0	Rated speed rpm : 2200
Check tolerance	+	Del. quantity
cm3/1000s. +-:	4.0	cm3/1000 strokes : 1.5
Shutoff solenoid Volt :	12 . ‡	Tolerance cm3/1000 str. +-: 1.5
Volt :	Ţ	Check tolerance
Rated speed rpm :	2500 +	cm3/1000s. +-: 1.5
Del. quantity	+	Shutoff solenoid
cm3/1000 strokes : Tolerance	22.5	Volt : 12
cm3/1000 str. +-:	3.0 I	
Check tolerance	+	ELECTR. SHUTOFF
cm3/1000s. +:	5.0	CONTROL LEVER, IDLE STOP
Shutoff solenoid Volt :	12 ‡	Rated speed rpm : 400
voct :	T I	Del. quantity
Rated speed rpm :	2900	cm3/1000 strokes : 1.5
Del. quantity	+	Tolerance
cm3/1000 strokes :	1.5	cm3/1000 str. +-: 1.5 Check tolerance
Tolerance cm3/1000 str. +-:	1.5 I	cm3/1000s. + : 1.5
Check tolerance	+	
cm3/1000s. +:	1.5	
Shutoff solenoid Volt :	12	
voct :	I I	
Rated speed rpm :	2200	
Del. quantity	+	
cm3/1000 strokes : Tolerance	33.0	CHECKING LOAD-DEPENDENT START OF DELIVERY
cm3/1000 str. + :	1.0	START OF DELIVERT
Check tolerance	+	DELIVERY DIFFERENCE
cm3/1000s. +:	2.2	Dated arred my 4250
Shutoff solenoid Volt :	12	Rated speed rpm : 1250 Del. quantity
	12	cm3/1000 strokes : -7.0
Rated speed rpm :	500	Tolerance
Del. quantity	+	cm3/1000 str. + : 3.0
cm3/1000 strokes : Tolerance	31.3	Check tolerance cm3/1000s. +-: 3.0
cm3/1000 str. + :	1.5	Shutoff solenoid
Check tolerance	+	Volt : 12
cm3/1000s. +:	3.0	TIMINO DELIZOE TRAVEL AVECERENCE
Shutoff solenoid Volt :	12 ‡	TIMING-DEVICE TRAVEL DIFFERENCE
, , , , , , , , , , , , , , , , , , ,	Ţ.	Rated speed rpm : 1250
Rated speed rpm :	1250	Del. quantity
	+	cm3/1000 strokes : -1.0

J.M.J. 1. D.D.D. 1. 1.	- :	0.1	
Check tolerance cm3/1000s. +-	· :	0.1	
Shutoff solenoid Volt	:	12	
DELIVERY DIFFEREN	ICE		
Rated speed rpm Del. quantity	:	1250	
cm3/1000 strokes	:	5.0	
	:	3.0	
cm3/1000s. +- Shutoff solenoid	:	3.0	
Volt	:	12	
PRESSURE DIFFEREN	ICE		
Rated speed rpm Supply pomp	:	1250	
pressure bar Tolerance bar +	:	-1.5 0.3	
Shutoff solenoid Volt	:	12	
TIMING-DEVICE TRA	WEL	DIFFERENCE	
Rated speed rpm Tolerance mm +		1250 0.5	
Rated speed rpm Tolerance mm + Check tolerance mm +	-:	1250	
Rated speed rpm Tolerance mm + Check	-:	1250 0.5	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid	- :	1250 0.5 0.6 12	
Rated speed rpm Tolerance mm +- Check tolerance mm +- Shutoff solenoid Volt  EXHAUST-GAS RECIF	- :	1250 0.5 0.6 12	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes	- : - :	1250 0.5 0.6 12	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	- : : : : :	1250 0.5 0.6 12 ATION 1000	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. +-	- : : : : :	1250 0.5 0.6 12 ATION 1000 21.4	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance	: : : : :	1250 0.5 0.6 12 ATION 1000 21.4 1.0	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid	: : : : :	1250 0.5 0.6 12 ATION 1000 21.4 1.0 4.0	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION Rated speed rpm	: : : : :	1250 0.5 0.6 12 ATION 1000 21.4 1.0 4.0	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION Rated speed rpm Del. quantity cm3/1000 strokes	: : : : : :	1250 0.5 0.6 12 ATION 1000 21.4 1.0 4.0	
Rated speed rpm Tolerance mm + Check tolerance mm + Shutoff solenoid Volt  EXHAUST-GAS RECIF Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. + Check tolerance cm3/1000s. + Shutoff solenoid Volt  START TRANSITION Rated speed rpm Del. quantity	: -:: :: ::	1250 0.5 0.6 12 ATION 1000 21.4 1.0 4.0 12	

Rated speed rpm : 225
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 str. +-: 17.0

Shutoff solenoid Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1

MICROSWITCH SET

mm : 0,8 : ARF 12,0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 20.08.96 **Edition** : ISO 4113 Test oil

: 0 460 424 110 Part no. Pump designation: VE4/12F1350R621

Customer-spec. information : IVECO-FIAT Customer : 8040.45.5200 Motor

Power KW 100.0

#### TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C Tolerance °C +-:

Overflow

restriction mm 0.55

0.35 Inlet press. ber : Tolerance bar +-:

Test nozzle holde

: 1 688 901 027 assembly

Opening pressure

bar Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00 450 x length mm

REMARKS

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm 1000

Aneroid pressure

1000

1.5 Setting um Tolerance mm 0.1 Shutoff solenoid

Volt 24

KSB/AFB Volt

#### SUPPLY PUMP PRESSURE

Rated speed rpm 1000 Aneroid pressure hPa 1000 Supply pomp pressure bar 6.5 Tolerance bar +-: 0.3 Shutoff solenoid Volt 24 KSB/AFB Volt 24 :

# FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm 70C . Aneroid pressure hPa 1000 Del. quantity cm3/1000 strokes : 78.9 Tolerance cm3/1000 str. +-:0.5 Spread cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. 5.0 Shutoff solenoid Volt 24 KSB/AFB Volt 24

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

500 Rated speed rpm Del. quantity cm3/1000 strokes : 50.5 Tolerance cm3/1000 str. +-:0.5 Shutoff solenoid 24 Volt Check tolerance cm3/1000s. 5.0

KSB/AFB Volt 24

IDLE SETTING

Rated speed rpm : 350	+
Del. quantity	+   KSB/AFB   Volt   :   24
cm3/1000 strokes : 13.0	
Tolerance	+ Rated speed rpm : 340
cm3/1000 str. +-: 2.0	
Shutoff solenoid	+ hPa : 1000
Volt : 24	
Spread	+ SV travel mm : 3.0
cm3/1000 strokes : 5.0	† Tolerance mm + : 1.0
Check tolerance	+ Check
cm3/1000s. : 5.0	+ tolerance mm $+$ : 1.0
	+ Shutoff solenoid
KSB/AFB Volt : 24	
RODINIO VOLE . E4	1 1000
	Rated speed rpm : 450
	+ Aneroid pressure
	† hPa : 1000
FULL-LOAD SPEED REGULATION	†
	+ SV travel nm : 3.2
Rated speed rpm : 1500	+ Tolerance mm +-: 0.5
Pressure hPa : 1000	} Check
Del. quantity	+ tolerance mm + : 0.5
cm3/1000 strokes : 44.0	
Tolerance	- Volt : 24
cm3/1000 str. +-: 2.0	
Shutoff solenoid	
	+ SUPPLY PUMP PRESSURE CHARACTERISTIC
Volt : 24	1
	+ Rated speed rpm : 1100
KSB/AFB Volt : 24	
	+ hPa : 1000
STARTING FUEL DELIVERY	+ Supply pomp
	+ pressure bar : 7.0
Rated speed rpm : 100	+ Tolerance bar +-: 0.3
Del. quantity	+ Shutoff solenoid
cm3/1000 strokes : 85.0	
Tolerance	
cm3/1000 str. +-: 15.0	KSB/AFB Volt : 24
Shutoff solenoid	NOBIATO VOLL . 24
	T Botod arred mm . (00
Volt : 24	
	Aneroid pressure
KSB/AFB Volt : 24	
	+ Supply pomp
	pressure bar : 4.3
	+ Tolerance bar + : 0.3
	→ Shutoff solenoid
	T State T Social Control
INJECTION-PUMP TEST SPECIFIC	
INJECTION-PUMP TEST SPECIFIC	ATIONS : 24
	ATIONS + Volt : 24  KSB/AFB Volt : 24
INJECTION-PUMP TEST SPECIFIC TIMING DEVICE CHARACTERISTIC	Volt : 24  KSB/AFB Volt : 24
TIMING DEVICE CHARACTERISTIC	Volt : 24  KSB/AFB Volt : 24  Rated speed rpm : 450
TIMING DEVICE CHARACTERISTIC Rated speed rpm : 1100	ATIONS  KSB/AFB Volt : 24  Rated speed rpm : 450  Aneroid pressure
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100  Aneroid pressure	Rated speed rpm : 450 Aneroid pressure hPa : 1000
TIMING DEVICE CHARACTERISTIC Rated speed rpm : 1100	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100  Aneroid pressure hPa : 1000	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100  Aneroid pressure hPa : 1000  SV travel mm : 2.8	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +-: 0.5
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100  Aneroid pressure hPa : 1000	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +-: 0.5
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100 Aneroid pressure hPa : 1000  SV travel mm : 2.8 Tolerance mm +-: 0.3	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +-: 0.5
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100 Aneroid pressure hPa : 1000  SV travel mm : 2.8 Tolerance mm +-: 0.3 Check	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +: 0.5 Shutoff solenoid Volt : 24
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100 Aneroid pressure hPa : 1000  SV travel mm : 2.8 Tolerance mm +-: 0.3 Check tolerance mm +-: 0.7	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +: 0.5 Shutoff solenoid Volt : 24
TIMING DEVICE CHARACTERISTIC  Rated speed rpm : 1100 Aneroid pressure hPa : 1000  SV travel mm : 2.8 Tolerance mm +-: 0.3 Check	Rated speed rpm : 450 Aneroid pressure hPa : 1000 Supply pomp pressure bar : 7.3 Tolerance bar +: 0.5 Shutoff solenoid Volt : 24  Rated speed rpm : 340

Aneroid pressure			Tolerance	
hPa	: 1000	I	cm3/1000 str. + :	5.0
Supply pomp		1	Check tolerance	3.0
pressure bar	: 7.0	1	cm3/1000s. +:	6.5
Tolerance bar +-		1	Shutoff solenoid	4.5
Shutoff solenoid		1	Volt :	24
Volt	: 24	I		24
1000	, 21	1	KSB/AFB Volt :	24
OVERFLOW QUANTITY		1	ROBIAID VOCC .	<b>€</b> ⊤
OVER CON CONTIN		1	Rated speed rpm :	1600
Rated speed rpm	: 500	1	Aneroid pressure	1000
Overflow quantity		I	hPa :	1000
ccm/10s	: 55.5	$\mathbf{I}$	Del. quantity	10012
Tolerance	. 33.3	1	cm3/1000 strokes :	1.5
ccm/10s +-	: 16.6	1	Tolerance	1.5
3007130		1	cm3/1000 str. +-:	1.5
Check tolerance		. 1	Check tolerance	1.5
ccm/10s +-	: 16.6	1	cm3/1000s. +-:	1.5
Shutoff solenoid		1	Shutoff solenoid	112
Volt	: 24	1	Volt :	24
		1		
KSB/AFB Volt	: 24	1	KSB/AFB Volt :	24
		+		
Rated speed rpm	: 1350	+	Rated speed rpm :	600
Aneroid pressure		+	Aneroid pressure	
hPa	: 1000	+	hPa :	400
Overflow quantity	•	+	Del. quantity	
ccm/10s	: 86.1	+	cm3/1000 strokes :	66.7
Tolerance		+	Tolerance	
ccm/10s +-	·: 27.7	+	cm3/1000 str. +-:	0.5
		+	Check tolerance	
Check tolerance		+	cm3/1000s. +-:	4.0
	27.7	+	Shutoff solenoid	
Shutoff solenoid	-	+	Volt :	24
Volt	: 24	t		
14mm 14 mm 1 h	24	+	KSB/AFB Volt :	24
KSB/AFB Volt	: 24	†		4750
A-1 -1 (	WALLAN BUILD A STREET STATE	†	Rated speed rpm :	1350
DELIVERY AND BREA	KAWAY CHARACTERISTIC	†	Aneroid pressure	4000
<b>5</b> . 1. 1	1500	†	hPa :	1000
Rated speed rpm	: 1500	†	Del. quantity	77 5
Aneroid pressure	. 4000	Ť	cm3/1000 strokes :	77.5
hPa	: 1000	†	Tolerance	2.0
Del. quantity	: 44.0	Ť	cm3/1000 str. +:	2.0
cm3/1000 strokes	1 44.0	Ť	Check tolerance cm3/1000s. +-:	3.5
Tolerance cm3/1000 str. +-	2.0	I	Shutoff solenoid	3.3
Check tolerance	2.0	I	Volt :	24
cm3/1000s. +-	: 6.0	I		24
Shutoff solenoid	. 0.0	I	KSB/AFB Volt :	24
Volt	: 24	1	1100/110 1011	₩ T
1011	• •	1	Rated speed rpm :	600
KSB/AFB Volt	: 24	1	Aneroid pressure	
	<del>- ,</del>	1	hPa :	1000
Rated speed rpm	: 1425	1	Del. quantity	300
Aneroid pressure		+	cm3/1000 strokes :	81.4
hPa	: 1000	+	Tolerance	
Del. quantity		+	cm3/1000 str. +-:	2.0
cm3/1000 strokes	: 69.8	+	Check tolerance	_
		+	cm3/1000s. +-:	3.5

Shutoff solenoid		+ Spread	
Volt	: 24	+ cm3/1000 stroke:	s: 5.0
		+ Check tolerance	
KSB/AFB Volt	: 24		<b>⊢:</b> 1.5
		Spread	1.5
Rated speed rpm	; 700	+ cm3/1000 stroke	s : 5.0
Aneroid pressure	. 100		5 . 7.0
hi?a	: 1000	IDLE DELIVERY	
Del. quantity	, 1000	I IDEE DELIVER!	
cm3/1000 strokes	: 78.9	Rated speed rpm	: 425
Tolerance	. 10.7	Del. quantity	• 423
cm3/1000 str. +-	.: 0.5	cm3/1000 stroke	s : 1.5
Check tolerance	. 0.5	Tolerance	\$ 1.2
cm3/1000s. +-	.: 3.5	- cm3/1000 str.	<b>⊢:</b> 1.5
Shutoff solenoid	. 3.3	Check tolerance	
Volt	: 24		
YU(L	: 24	+ Shutoff solenoid	
		+ Volt	· 24
MECHANICAL CUICOS	E	Τ γοιτ	ž 24
MECHANICAL SHUTOF	r	T vontarn with	2/
Dodool annead an	. 4750	+ KSB/AFB Volt	: 24
Rated speed rpm	: 1350	†	
Aneroid pressure	. 4000	†	
hPa	: 1000	†	
Del. quaritity	4.5	†	
cm3/1000 strokes	: 1,5	†	
Tolerance	4 =	†	
cm3/1000 str. +	1.5	+ START TRANSITION	V
Spread		†	
cm3/1000 strokes	: 5.0	+ Rated speed rpm	: 250
Check tolerance		+ Del. quantity	
	• : 1.5	+ cm3/1000 stroke	s : 53.5
Spread		+ Tolerance	
cm3/1000 strokes	: 5.0	+ cm3/1000 str.	
Shutoff solenoid		+ Shirtoff solenoid	
Volt	: 24	† Volt	: 24
	= .	†	
KSB/AFB Volt	: 24	† KSB/AFB Volt	: 24
		†	
		+	4.963
ELECTR. SHUTOFF		+ Rated speed rpm	: 130
CONTROL LEVER, ID	LE STOP	+ Del. quantity	25.2
	300	+ cm3/1000 stroke	s : 85. <b>0</b>
Rated speed rpm	: 350	+ Tolerance	
Del. quantity	4 4	+ cm3/1000 str.	
cm3/1000 strakes	: 1.5	+ Shutoff solenoid	
Tolerance		† Volt	: 24
cm3/1000 str. +-		†	<b>.</b>
Check tolerance		+ KSB/AFB Volt	: 24
cm3/1000s. +-	·: 1.5	+	
Spread			
cm3/1000 strokes	: 5.0	+ ASSEMBLY AND AD	JUSTMENT DIMENSIONS
		+	
FULL-LOAD STOP CO	NTROL LEVER	+ Dimension K mm	
		+ Tolerance mm	
Rated speed rpm	: 350	+ Dimension KF mm	
Del. quantity		† Tolerance mm	
cm3/1000 strokes	: 1.5	+ MS1 dimension m	
Tolerance			<b>←</b> : 0,2
cm3/1000 str. +-	1.5	+	•
		1	

CONTROL LEVER POSITION SET

Control lever position YA mm : 37,9..39,9

Control lever position YB mm : 41,7..46,9

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06.12.96 : ISO 4113 Test oil

: 0 460 414 145 Part no. Pump designation : VE4/11F2000R686-2

Customer-spec. information Customer : FORD : 2.5L DI Motor Power KW 56.0

#### TEST BENCH REQUIREMENTS

# Calibrating-oil

return

temperature °C Tolerance °C +-:

Overflow

restriction mm 0.75

Inlet press. bar : 0.35 Tolerance bar +-: 0.05

Test nozzle holde

: 1 688 901 114 assembly

Opening pressure

bar Tolerance bar ←:

Test Lines : 1 689 750 073

Outside diameter : 6.00

x inside diameter : 2.00 x length mm 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 0,35 Tolerance mm +-:0.05

Outlet | : B KDEP1151

#### INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm Tolerance mm 0.1 Shutoff solenoid

Volt 12

# SUPPLY PUMP PRESSURE

Rated speed rpm 1250

Supply pomp

pressure bar Tolerance bar + : 0.3 Shutoff solenoid

12 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

30.6

1.0

Rated speed rpm : 1000 Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 35.7 Del. quantity

cm3/1000 strokes :

Tolerance cm3/1000 str. + :0.5

Tolerance

cm3/1000 str. + :0.2

Spread

cm3/1000 strokes : 3.0

Shutoff solenoid

Volt 12

Shutoff solenoid

Volt 12 Check tolerance

cm3/1000s. 4.0

# IDLE SETTING

425 Rated speed rpm Del. quantity

cm3/1000 strokes : 8.3 Tolerance

cm3/1000 str. + :Shutoff solenoid

Volt 12

Spread

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s.4.0

	Supply pomp pressure bar : 5.8 Tolerance bar +: 0.3 Shutoff solenoid
FULL-LOAD SPEED REGULATION	Volt : 12
Rated speed rpm : 2200 Del. quantity	Rated speed rpm : 1000 Supply pomp
cm3/1000 strokes : 32.0 Tolerance	+ pressure bar : 6.9 + Tolerance bar +: 0.3
cm3/1000 str. +: 1.0 Shutoff solenoid Volt: 12	+ Shutoff solenoid + Volt : 12
STARTING FUEL DELIVERY	OVERFLOW QUANTITY
Rated speed rpm : 100	Rated speed rpm : 500 Overflow quantity
Del. quantity cm3/1000 strokes : 52.5	t ccm/10s : 119.4 Tolerance
Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid	+ ccm/10s + : 22.2 + Check tolerance
Volt : 12	+ ccm/10s + : 22.2 + Shutoff solenoid
	+ Volt : 12
	Rated speed rpm : 1950 Overflow quantity
INJECTION-PUMP TEST SPECIFICATIONS	tocm/10s : 150.0 Tolerance
TIMING DEVICE CHARACTERISTIC	+ ccm/10s +: 34.7
Rated speed rpm : 2000	Check tolerance ccm/10s +-: 34.7
SV travel mm : 5.7 Tolerance mm + : 0.4 Check	+ Shutoff solenoid + Volt : 12
tolerance mm +-: 0.9 Shutoff solenoid	DELIVERY AND BREAKAWAY CHARACTERISTIC
Volt : 12	Rated speed rpm : 2200  Del. quantity
Rated speed rpm : 1000	cm3/1000 strokes : 32.0 Tolerance
SV travel mm : 2.1 Tolerance mm + : 0.4 Check	+ cm3/1000 str. +: 1.0 - Check tolerance - cm3/1000s. +: 5.0
tolerance mm +: 0.9 Shutoff solenoid	+ cm3/1000s. +: 5.0 + Shutoff solenoid + Volt : 12
Volt : 12	Rated speed rpm : 2150
SUPPLY PUMP PRESSURE CHARACTERISTIC	Del. quantity  cm3/1000 strokes : 34.9
Rated speed rpm : 2000 Supply pomp	Tolerance + cm3/1000 str. +: 3.0
pressure bar : 9.2 Tolerance bar +-: 0.3	+ Check tolerance - cm3/1000s. +-: 6.0
Shutoff solenoid Volt : 12	+ Shutoff solenoid + Volt : 12
Rated speed rpm : 500	Rated speed rpm : 2425

Nal manakaka	
Del. quantity +	
cm3/1000 strokes : 2.5 + Full	LL-LOAD STOP CONTROL LEVER
Tolerance	
	ted speed rpm : 425
141 141 141	
	l. quantity
	3/1000 strokes : 1.5
	lerance
Volt : 12 + cm	3/1000 str. +-: 1.5
	read
	3/1000 strokes : 5.0
	eck tolerance
***	
	3/1000s. +-: 1.5
	read
HBA stroke mm : 7.7 + cm	3/1000 strokes : 5.0
+	
Rated speed rpm : 1950 + IDI	LE DELIVERY
Del. quantity	
·	ted speed rpm : 500
	l. quantity
	3/1000 strokes : 3.0
	lerance
cm3/1000s. +-: 2.5 + cm3	3/1000 str. + : 3.0
Shutoff solenoid + Che	eck tolerance
	3/1000s. + : 3.0
	utoff solenoid
	lt : 12
The state of the s	: 12
Del. quantity +	
cm3/1000 strokes : 39.0 +	
Tolerance +	
cm3/1000 str. +: 1.2 +	
Check tolerance	
cm3/1000s. +: 2.5	
	HALIST-CAS DECIDOUS ATTON
Shutoff solenoid + EXI	HAUST-GAS RECIRCULATION
Shutoff solenoid + EXI Volt : 12 +	
Shutoff solenoid + EXI Volt : 12 + Rar	ted speed rpm : 1250
Shutoff solenoid + EXI Volt : 12 + Rar Rated speed rpm : 500 + De	ted speed rpm : 1250 L. quantity
Shutoff solenoid	ted speed rpm : 1250
Shutoff solenoid EXIVOLT : 12 Rar Rated speed rpm : 500 Del. quantity cm	ted speed rpm : 1250 L. quantity
Shutoff solenoid	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance
Shutoff solenoid  Volt: 12  Rated speed rpm: 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. +-: 0.5
Shutoff solenoid       EXI         Volt       : 12         Rated speed rpm       : 500         Del. quantity       cm         cm3/1000 strokes       : 30.6         Tolerance       cm         cm3/1000 str. +: 0.2       Che	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. +-: 0.5 eck tolerance
Shutoff solenoid       EXI         Volt       : 12         Rated speed rpm       : 500         Del. quantity       cm         cm3/1000 strokes       : 30.6         Tolerance       cm         cm3/1000 str.       + : 0.2         Check tolerance       cm	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 L. quantity 3/1000 strokes : 26.5 Lerance 3/1000 str. + : 0.5 eck tolerance 3/1000S. + : 2.5 utoff solenoid
Shutoff solenoid       EXI         Volt       12         Rated speed rpm       500         Del. quantity       cm         cm3/1000 strokes       30.6         Tolerance       cm         cm3/1000 str.       -:         Check tolerance       cm         cm3/1000s.       -:         Shutoff solenoid       Vo	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 L. quantity 3/1000 strokes : 26.5 Lerance 3/1000 str. + : 0.5 eck tolerance 3/1000S. + : 2.5 utoff solenoid
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. +-: 0.5 eck tolerance 3/1000s. +-: 2.5 utoff solenoid lt : 12  ART TRANSITION
Shutoff solenoid Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. +-: 0.5 eck tolerance 3/1000s. +-: 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000S. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance
Shutoff solenoid  Volt : 12  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 30.6  Tolerance  cm3/1000 str. + : 0.2  Check tolerance  cm3/1000s. + : 3.0  Shutoff solenoid  Volt : 12  ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 425	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0
Shutoff solenoid  Volt : 12  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 30.6  Tolerance  cm3/1000 str. +: 0.2  Check tolerance  cm3/1000s. +: 3.0  Shutoff solenoid  Volt : 12  ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 425  Del. quantity  EXION  Rated Speed rpm : 425  Cm.  Rated speed rpm : 425  Del. quantity	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid
Shutoff solenoid Volt : 12  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 30.6 Tolerance cm3/1000 str. + : 0.2 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 425 Del. quantity cm3/1000 strokes : 1.5	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0
Shutoff solenoid  Volt : 12  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 30.6  Tolerance  cm3/1000 str. +: 0.2  Check tolerance  cm3/1000s. +: 3.0  Shutoff solenoid  Volt : 12  ELECTR. SHUTOFF  CONTROL LEVER, IDLE STOP  Rated speed rpm : 425  Del. quantity  cm3/1000 strokes : 1.5  Volerance	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid
Shutoff solenoid Volt : 12  Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 30.6 Tolerance cm3/1000 str. + : 0.2 Check tolerance cm3/1000s. + : 3.0 Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 425 Del. quantity cm3/1000 strokes : 1.5	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid
Shutoff solenoid  Volt : 12  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 30.6  Tolerance  cm3/1000 str. + : 0.2  Check tolerance  cm3/1000s. + : 3.0  Shutoff solenoid  Volt : 12  Rated speed rpm : 425  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. + : 1.5	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid lt : 12
Shutoff solenoid  Volt : 12  Rated speed rpm : 500  Del. quantity  cm3/1000 strokes : 30.6  Tolerance  cm3/1000 str. +: 0.2  Check tolerance  cm3/1000s. +: 3.0  Shutoff solenoid  Volt : 12  Rated speed rpm : 425  Del. quantity  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. +: 1.5  Check tolerance  Rated speed rpm : 425  Cm3/1000 strokes : 1.5  Tolerance  cm3/1000 str. +: 1.5  Check tolerance	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid lt : 12  ted speed rpm : 300
Shutoff solenoid  Volt : 12  Rated speed rpm : 500	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid lt : 12  ted speed rpm : 300 l. quantity
Shutoff solenoid   Volt	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid lt : 12  ted speed rpm : 300 l. quantity 3/1000 strokes : 50.6
Shutoff solenoid   Volt	ted speed rpm : 1250 l. quantity 3/1000 strokes : 26.5 lerance 3/1000 str. + : 0.5 eck tolerance 3/1000s. + : 2.5 utoff solenoid lt : 12  ART TRANSITION  ted speed rpm : 480 l. quantity 3/1000 strokes : 30.4 lerance 3/1000 str. + : 6.0 utoff solenoid lt : 12  ted speed rpm : 300 l. quantity

Volt :

12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7

Dimension K mm : 2,8 Tolerance mm +: 0,1

Dimension KF mm : 8,4 Tolerance mm +: 0,2

Dimension MS mm : 1,8

Tolerance mm +: 0,2

MICPOSWITCH SET

: ARF 20.0

CONTROL LEVER POSITION SET

Control lever

position YA mm : 42,8..45,8

Control lever

position YB mm : 59,5..71,5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.96 Test oil : ISO 4113

Part no. : 0 460 414 146 Pump designation : VE4/11F2000R686-3

Customer-spec. information Customer : FORD Motor : 2.5L DI

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature °C : 45
Tolerance °C +- : 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde

assembly : 1 688 901 114

Opening pressure

bar : 207 Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 450

#### REMARKS

# BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,35 Tolerance mm +-: 0,05

Outlet : B KDEP1151

# INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.2
Tolerance mm + : 0.1
Shutoff solenoid

Volt : 12

# SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pomp
pressure bar : 7.5
Tolerance bar +: 0.3
Shutoff solenoid
Volt : 12

#### FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

1000 Rated speed rpm 500 Rated speed rpm Del. quantity cm3/1000 strokes : 35.7 Del. quantity cm3/1000 strokes : 30.6 Tolerance cm3/1000 str. + :0.5 Tolerance cm3/1000 str. +: 0.2 Spread cm3/1000 strokes : 3.0 Shutoff solenoid 12 Volt Shutoff solenoid 12 Volt Check tolerance cm3/1000s. : 4.0

#### IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 8.3
Tolerance
cm3/1000 str. +-: 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance

Check tolerance cm3/1000s. : 4.0

	+ Supply pomp + pressure bar : 5.8
FULL-LOAD SPEED REGULATION	+ Tolerance bar +: 0.3 + Shutoff solenoid
Rated speed rpm : 2200	Volt : 12
Del. quantity cm3/1000 strokes : 32.0	Rated speed rpm : 1000
Tolerance cm3/1000 str. + : 1.0	+ pressure bar : 6.9 + Tolerance bar +: 0.3
Shutoff salenoid Volt : 12	+ Shutoff solenoid + Volt : 12
STARTING FUEL DELIVERY	OVERFLOW QUANTITY
Rated speed rpm : 100 Del. quantity	Rated speed rpm : 500 Overflow quantity
cm3/1000 strokes : 52.5 Tolerance	ccm/10s : 119.4 Tolerance
cm3/1000 str. +-: 20.0 Shutoff solenoid	+ ccm/10s +-: 22.2
Volt : 12	+ Check tolerance + ccm/10s + : 22.2 + Shutoff solenoid
	Volt : 12
INJECTION-PUMP TEST SPECIFICATIONS	Rated speed rpm : 1950 Overflow quantity
TIMING DEVICE CHARACTERISTIC	+ ccm/10s : 150.0 + Tolerance
Rated speed rpm : 2000	+ ccm/10s + : 34.7
SV travel mm : 5.7 Tolerance mm +-: 0.4	+ Check tolerance + ccm/10s + : 34.7 + Shutoff solenoid
Check tolerance mm + : 0.9	+ Volt : 12
Shutoff solenoid Volt : 12	+ DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 1000	Rated speed rpm : 2200  Del. quantity
SV travel mm : 2.1 Tolerance mm + : 0.4	- cm3/1000 strokes : 32.0 - Tolerance - cm3/1000 str. + : 1.0
Check tolerance mm +: 0.9	Check tolerance cm3/1000s. +-: 5.0
Shutoff solenoid Volt : 12	Shutoff solenoid Volt : 12
SUPPLY PUMP PRESSURE CHARACTERISTIC	+ Rated speed rpm : 2150
Rated speed rpm : 2000	Del. quantity cm3/1000 strokes : 34.9
Supply pomp pressure bar : 9.2 Tolerance bar + : 0.3	Tolerance cm3/1000 str. +: 3.0 Check tolerance
Shutoff solenoid Volt : 12	+ cm3/1000s. +: 6.0 + Shutoff solenoid
Rated speed rpm : 500	Volt : 12
	+ Rated speed rpm : 2425

Del. quantity	+			
cm3/1000 strokes :	2,5	FULL-LOAD STOP CON	TROL LEVER	
Tolerance	1			
cm3/1000 str. +:	2.5	Rated speed rpm	425	
Check tolerance	1	Del. quantity	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
cm3/1000s. +-:	2.5	cm3/1000 strokes	: 1.5	
Shutoff solenoid	I.	Tolerance	. 1.5	
Volt :	12 I		: 1.5	
volt :	12 +	cm3/1000 str. +-	1.5	
•	†	Spread	F 0	
Aneroid pressure	†	cm3/1000 strokes	: 5.0	
hPa :	†	Check tolerance		
	+	cm3/1000s. +-	: 1.5	
LDA/	+	Spread		
HBA stroke mm :	7.7	cm3/1000 strokes	: 5.0	
	+			
Rated speed rpm : 19	950	IDLE DELIVERY		
Del. quantity	. 1			
cm3/1000 strokes :	40.5	Rated speed rpm	: 500	
Tolerance	1	Del. quantity	. 500	
cm3/1000 str. +-:	1.2	cm3/1000 strokes	: 3.0	
	T. T		. 5.0	
Check tolerance	7 T	Tolerance	7.0	
cm3/1000s. +-:	2.5	cm3/1000 str. +	: 3.0	
Shutoff solenoid	, †	Check tolerance		
Volt :	12 +	cm3/1000s. +-	: 3.0	
	+	Shutoff solenoid		
	<sup>2</sup> 00 +	Volt	: 12	
Del. quantity	-+-			
cm3/1000 strokes :	39.0			
Tolerance	+			
roter arice				
	1.2			
cm3/1000 str. +:	1.2			
cm3/1000 str. + : Check tolerance	+			
cm3/1000 str. +: Check tolerance cm3/1000s. +:	2.5	FYHAUST-CAS DECIDO	III ATTON	
cm3/1000 str. + : Check tolerance cm3/1000S. + : Shutoff solenoid	2.5	EXHAUST-GAS RECIRC	ULATION	
cm3/1000 str. +: Check tolerance cm3/1000s. +:	+			
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :	2.5	Rated speed rpm		
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  Rated speed rpm :	2.5	Rated speed rpm Del. quantity	: 1250	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  Rated speed rpm : 5 Del. quantity	2.5	Rated speed rpm Del. quantity cm3/1000 strokes	: 1250	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  Rated speed rpm : 5 Del. quantity cm3/1000 strokes :	2.5	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1250 : 26.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  Rated speed rpm : ! Del. quantity cm3/1000 strokes : Tolerance	2.5 12 500 30.6	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	: 1250 : 26.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : 5 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +:	2.5	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance	: 1250 : 26.5 : 0.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +: Check tolerance	2.5 12 500 30.6 0.2	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	: 1250 : 26.5 : 0.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	2.5 12 500 30.6	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 1250 : 26.5 : 0.5 : 2.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes : Tolerance cm3/1000 str. +: Check tolerance	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +-	: 1250 : 26.5 : 0.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	2.5 12 500 30.6 0.2	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	: 1250 : 26.5 : 0.5 : 2.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid	: 1250 : 26.5 : 0.5 : 2.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt	: 1250 : 26.5 : 0.5 : 2.5	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt START TRANSITION	: 1250 : 26.5 : 0.5 : 2.5 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION Rated speed rpm	: 1250 : 26.5 : 0.5 : 2.5 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity	: 1250 : 26.5 : 0.5 : 2.5 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes	: 1250 : 26.5 : 0.5 : 2.5 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm: Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : : Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR	2.5 12 500 30.6 0.2 3.0	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +-	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Del. quantity	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes:	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt ::  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 str. +:	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt:  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt :  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance	2.5 12 500 30.6 0.2 3.0 12 	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	2.5 12 500 30.6 0.2 3.0 12	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm Del. quantity Cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm Del. quantity	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000s. +: Check tolerance cm3/1000s. +: Spread	2.5 12 500 30.6 0.2 3.0 12 525 1.5 1.5 1.5	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm Del. quantity cm3/1000 str. +- Shutoff solenoid Volt	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0 : 12	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +:	2.5 12 500 30.6 0.2 3.0 12 	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance Cm3/1000 strokes Tolerance	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0 : 12 : 300 : 50.6	
cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  Rated speed rpm : ! Del. quantity cm3/1000 strokes: Tolerance cm3/1000 str. +: Check tolerance cm3/1000s. +: Shutoff solenoid Volt  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOR Rated speed rpm : 4 Del. quantity cm3/1000 strokes: Tolerance cm3/1000 strokes: Tolerance cm3/1000s. +: Check tolerance cm3/1000s. +: Spread	2.5 12 500 30.6 0.2 3.0 12 525 1.5 1.5 1.5	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Check tolerance cm3/1000s. +- Shutoff solenoid Volt  START TRANSITION  Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 str. +- Shutoff solenoid Volt  Rated speed rpm Del. quantity cm3/1000 str. +- Shutoff solenoid Volt	: 1250 : 26.5 : 0.5 : 2.5 : 12 : 480 : 30.4 : 6.0 : 12 : 300 : 50.6	

Volt

12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.7

Dimension K mm : 2,8
Tolerance mm +: 0,1
Dimension KF mm : 8,4
Tolerance mm +: 0,2
Dimension MS mm : 1,8
Tolerance mm +: 0,2

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION SET

Control lever

position YA mm : 42,8..45,8

Control Lever

position YB mm : 59,5..71.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.96 Test oil : ISO 4113

Part no. : 0 460 426 265 Pump designation : VE6/12F1150R730

Customer-spec. information Customer : NH Motor : EP0408 Power KW : 117.0

#### TEST BENCH REQUIREMENTS

Calibrating—Gil

return

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test nozzle holde

assembly : 1 688 901 110

Opening pressure

bar : 250 Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0 Outlet : B

# INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 800
Aneroid pressure
hPa : 1500

Setting mm : 2.1
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

# SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Supply pomp
pressure bar : 6.2
Tolerance bar +: 0.3
Shutoff solenoid
Volt : 12

# FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm 800 Aneroid pressure hPa 1500 Del. quantity cm3/1000 strokes : 100.5 Tolerance cm3/1000 str. +-: 0.5 Spread cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. 5.0 Shutoff solenoid 12 Volt

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

5.0

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 80.5
Tolerance
cm3/1000 str. + : 0.5
Shutoff solenoid
Volt : 12
Check tolerance

IDLE SETTING

cm3/1829s.

Rated speed rpm : 375

			_	
Del. quantity	44.0	+ Check		0.7
cm3/1000 strokes :	16.0		rance mm +-:	0.7
Tolerance	2.0		off solenoid	40
cm3/1000 str. +:	2.0	+ Volt	:	12
Shutoff solenoid Volt :	12	Teuppi	I V DIMO ODECCUDE	CHADACTEDICTIC
Volt : Spread	12	T SUPPL	LY PUMP PRESSURE	CHARACIERISIIC
cm3/1000 strokes :	5.0	I Pate	d speed rpm :	1000
Check tolerance	2.0		oid pressure	1000
cm3/1000s. :	5.0	hPa	sia pressare	1500
	J.0		ly pomp	1500
			sure bar :	7.2
		• •	rance bar +-:	0.3
		+ Shute	off solenoid	
FULL-LOAD SPEED REG	ULATION	→ Volt	:	12
		, <del>†</del>		
Rated speed rpm :	1250		d speed rpm :	600
Pressure hPa :	1500		oid pressure	4.5.5.
Del. quantity	40.0	+ hPa		1500
cm3/1000 strokes :	49.0		ly pomp	<b>5</b> 0
Tolerance	2.0		sure bar :	5.2
cm3/1000 str. +-: Shutoff solenoid	2.0		rance bar +-: off solenoid	0.3
Volt :	12	T Shute		12
	16	I	•	12
STARTING FUEL DELIV	FRY	I OVER	FLOW QUANTITY	
		+	2011 401111111	
Rated speed rpm :	100	∔ Rate	d speed rpm :	1150
Del. quantity			oid pressure	
cm3/1000 strokes :	110.0	-	•	1500
Tolerance			flow quantity	
cm3/1000 str. +-:	30.0	+ ccm/		130.5
Shutoff solenoid	40		rance	<b></b>
Volt :	12	+ ccm/	10s +-:	27.7
		Charle	k tolerance	
		T com/		27.7
			off solenoid	21.1
<u> </u>		Volt		12
INJECTION-PUMP TEST	SPECIFICATION		•	
		•	d speed rpm :	500
TIMING DEVICE CHARA	CTERISTIC	- Aner	oid pressure	
		+ hPa		1500
Rated speed rpm :	1000		flow quantity	
Aneroid pressure	4.500	+ ccm/		97.2
hPa :	1500		rance	4//
St. denoted an	3.3	+ ccm/	10s +→ :	16.6
SV travel mm : Tolerance mm + :	0.4	I	k tolerance	
Check	0.4	+ ccm/		16.6
tolerance mm +:	0.7		off solenoid	70.0
Shutoff solenoid	<b>U.</b> 1	Volt		12
Volt :	12	1 .500	•	
	· <del>-</del>	+ DELI	VERY AND BREAKAW	AY CHARACTERISTIC
Rated speed rpm :	600	+		
Aneroid pressure			d speed rpm :	1250
hPa :	1500		oid pressure	4885
•		+ hPa		1500
SV travel mm :	0.9		quantity	/0.0
Tolerance mm +-:	0.4	+ cm3/	1000 strokes :	49.0

Tolerance		† Tolerance
cm3/1000 str. + :	2.0	+ cm3/1000 str. + : 3.0
Check tolerance cm3/1000s. +-:	6.0	+ Check tolerance + cm3/1000s. + : 5.0
Shutoff solenoid		- Shutoff solenoid
Volt :	12	+ Volt : 12
Rated speed rpm :	1200	+ Rated speed rpm : 800
Aneroid pressure	1200	+ Rated speed rpm : 800 + Aneroid pressure
hPe :	15 <b>0</b> 0	+ nFa : 1500
Del. quantity	A** A	- Del. quantity
cm3/1000 strokes : Tolerance	83.0	+ cm3/1000 strokes : 100.5 + Tolerance
cm3/1000 str. +-:	5.0	- cm3/1000 str. +-: 0.5
Check tolerance		+ Check tolerance
cm3/1000s. +-:	0.8	+  cm3/1000s. + : 3.0
Shutoff solenoid Volt :	12	+ Shutoff solenoid + Volt : 12
volt :	12	† Volt : 12
Rated speed rpm :	1300	1
Aneroid pressure	4500	
hPa : Del. quantity	1500	+ ELECTR. SHUTOFF + CONTROL LEVER, IDLE STOP
cm3/1000 strokes :	1.5	T CONTROL LEVER, IDEL STOP
Tolerance		Rated speed rpm : 375
cm3/1000 str. +-:	1.5	+ Del. quantity
Check tolerance cm3/1000s. +-:	1.5	cm3/1000 strokes : 1.5 Tolerance
Shutoff solenoid	1.5	- cm3/1000 str. + : 1.5
Volt :	12	+ Check tolerance
thatasi amasai ama	(50	+ cm3/1000s. + : 1.5
Rated speed rpm : Aneroid pressure	650	+ Spread + cm3/1000 strokes : 5.0
hPa :	600	-
Del. quantity	***	+ FULL-LOAD STOP CONTROL LEVER
cm3/1000 strokes : Tolerance	101.0	+ Rated speed rpm : 375
cm3/1000 str. +:	0.5	+ Del. quantity
Check tolerance		+ cm3/1000 strokes : 1.5
cm3/1000s. +:	4.0	Tolerance
Shutoff solenoid Volt :	12	+ cm3/1000 str. +-: 1.5 + Spread
•	16	cm3/1000 strokes : 5.0
Rated speed rpm :	1150	+ Check tolerance
Aneroid pressure	4500	+ cm3/1000s. +-: 1.5
hPa : Del. quantity	1500	+ Spread + cm3/1000 strokes : 5.0
cm3/1000 strokes :	88.0	
Tolerance		+ IDLE DELIVERY
cm3/1000 str. +:	1.5	+ Rated speed rpm : 450
Check tolerance cm3/1000s. +-:	3.5	+ Rated speed rpm : 450 + Del. quantity
Shutoff solenoid	3.3	+ cm3/1000 strokes : 1.5
Volt :	12	Tolerance
Dated anned ann	500	cm3/1000 str. +-: 1.5 Check tolerance
Rated speed rpm : Aneroid pressure	J <b>U</b> U	+ cm3/1000s. +-: 1.5
hPa :	1500	+ Shutoff solenoid
Del. quantity	420.0	+ Volt : 12
cm3/1000 strokes :	120.0	†

# START TRANSITION

Rated speed rpm : 200

Del. quantity cm3/1000 strokes :

35.0

Tolerance

cm3/1000 str. + : 5.0

Shutoff solenoid

Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Toterance mm + : 0,1
Dimension KF mm : KOT
Dimension MS mm : 1,3
Toterance mm + : 0,2

# CONTROL LEVER POSITION

SET

Control lever

position YA mm : 32,8..34,8

Control lever

position YB mm : 45,0..51,0

End of test-specification sheet

#### BOSCH INJ. PUMP TEST SPECIFICATIONS

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.12.95 Test oil : ISO 4113

Part no. : 0 460 426 266 Pump designation : VE6/12F1100R730-1

Customer-spec. information
Customer : NH
Motor : EP040B
Power KW : 98.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

returri

temperature °C : 45
Tolerance °C + : 1

Overflow

restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +-: 0.05

Test nozzle holde

assembly : 1 688 901 110

Opening pressure

bar : 250 Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0 Outlet : B

INJECTION PUMP SETTING VALUES

#### TIMING DEVICE TRAVEL

Rated speed rpm : 800
Aneroid pressure
hPa : 1500

nPa : 1500

Setting mm : 2.0
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800 Aneroid pressure

hPa : 1500

Supply pomp

pressure bar : 5.2
Tolerance bar +: 0.3

Shutoff solenoid

Volt : 12

# FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800 Aneroid pressure

hPa : 1500 Del. quantity

cm3/1000 strokes : 85.5

cm3/1000 str. +: 0.5

Spread

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 5.0

Shutoff solenoid

Volt : 12

# FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 81.0

Tolerance

cm3/1000 str. +: 0.5

Shutoff solenoid

Volt : 12 Check tolerance

cm3/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 375

Del. quantity		+ Check
cm3/1000 strokes	: 12.0	+ tolerance mm +-: 0.7
Tolerance		+ Shutoff solenoid
cm3/1000 str. +-	: 2.0	+ Volt : 12
Shutoff solenoid		+
Volt	: 12	→ SUPPLY PUMP PRESSURE CHARACTERISTIC
Spread		
cm3/1000 strokes	: 5.0	+ Rated speed rpm : 1100
Check tolerance		+ Aneroid pressure
cm3/4000s.	: 5.0	+ hPa : 1500
	• 2.0	+ Supply pomp
		pressure bar : 7.7
		Tolerance bar +: 0.3
		- Shutoff solenoid
FULL-LOAD SPEED RE	COULATION:	+ Volt : 12
FULL-EUAD SPEED RE	GOLATION	T voit : 12
Dated aread are	: 1180	. T Botad amount ann . (00
Rated speed rpm		+ Rated speed rpm : 600
Pressure hPa	: 1500	+ Aneroid pressure
Del. quantity	10 F	+ hPa : 1500
cm3/1000 strokes	: 48.5	+ Supply pomp
Tolerance		+ pressure bar : 6.2
cm3/1000 str. +	: 2.0	+ Tolerance bar +-: 0.3
Shutoff solenoid		+ Shutoff solenoid
Volt	: 12	+ Volt : 12
		+
STARITING FUEL DELI	IVERY	+ OVERFLOW QUANTITY
		+
Rated speed rpm	: 100	+ Rated speed rpm : 1100
Del. quantity		+ Aneroid pressure
cm3/1000 strokes	: 110.0	+ hPa : 1500
Tolerance		+ Overflow quantity
cm3/1000 str. +	: 30.0	+ ccm/10s : 130.5
Shutoff solenoid		Tolerance
Volt	: 12	+ ccm/10s + : 27.7
<b>V</b> 000		
		- Check tolerance
		+ ccm/10s +-: 27.7
		+ Shutoff solenoid
		+ Volt : 12
INJECTION-PUMP TES	T COECTETCATIONS	T vott . 12
TIMECTION-FOMP TES	ST SPECIFICATIONS	T Rated speed rpm : 500
TIMING DEVICE CHAR	AATENSATTA	
STUTIAG DEATCE CHAR	(WCIEKT21TC	Aneroid pressure
Dadad assault assault	. 1000	+ hPa : 1500
Rated speed rpm	: 1000	+ Overflow quantity
Aneroid pressure	4500	+ ccm/10s : 97.2
hPa	: 1500	+ Tolerance
		+ ccm/10s +-: 16.5
SV travel mm	: 3.8	
Tolerance mm +	: 0.4	+ Check tolerance
Check	- ·	+   ccm/10s  +   :   16.6
tolerance mm +	: 0.7	+ Shutoff solenoid
Shutoff solenoid		+ Volt : 12
Volt	: 12	+
		+ DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm	: 600	+
Mateu specu i pili		+ Rated speed rpm : 1180
Aneroid pressure		+ Rated speed rpm : 1180
	: 1500	+ Aneroid pressure
Aneroid pressure		
Aneroid pressure hPa	: 1500	Aneroid pressure hPa : 1500
Aneroid pressure	: 1500 : 1.0	+ Aneroid pressure

Tolerance cm3/1000 str. +-:	2.0	+ Tolerance + cm3/1000 str. + : 3.0
Check tolerance		+ Check tolerance
cm3/1000s. +-: Shutoff solenoid	6.0	+ cm3/1000s. + : 5.0 + Shutoff solenoid
Volt :	12	12 volt : 12
Rated speed rpm : Aneroid pressure	1150	Rated speed rpm : 800 Aneroid pressure
h?e ;	1500	+ hPa : 1500
cm3/1000 strokes :	68.0	Del. quantity cm3/1000 strokes : 85.5
Tolerance cm3/1000 str. +-:	5.0	Tolerance cm3/1000 str. +: 0.5
Check tolerance cm3/1000s. +-:	8.6	+ Check tolerance + cm3/1000s. + : 3.0
Shutoff solenoid Volt :	12	+ Shutoff solenoid + Volt : 12
Rated speed rpm :	1210	‡
Aneroid pressure hPa :	1500	ELECTR. SHUTOFF
Del. quantity cm3/1000 strokes :	1.5	CONTROL LEVER, IDLE STOP
Tolerance cm3/1000 str. +-:	1.5	Rated speed rpm : 375  Del. quantity
Check tolerance cm3/1000s. +-:	1.5	cm3/1000 strokes : 1.5  Tolerance
Shutoff solenoid		+ cm3/1000 str. $+$ : 1.5
Volt :	12	Check tolerance cm3/1000s. +: 1.5
Rated speed rpm : Aneroid pressure	650	+ Spread + cm3/1000 strokes : 5.0
hPa : Del. quantity	600	+ FULL-LOAD STOP CONTROL LEVER
cm3/1000 strokes : Tolerance	91.5	Rated speed rpm : 375
cm3/1000 str. +-: Check tolerance	0.5	Del. quantity cm3/1000 strokes : 1.5
cm3/1000s. +-: Shutoff solenoid	4.0	Tolerance + cm3/1000 str. + : 1.5
Volt :	12	Spread - cm3/1000 strokes : 5.0
Rated speed rpm :	1100	+ Check tolerance
Aneroid pressure hPa :	1500	cm3/1000s. +-: 1.5 Spread
Del. quantity cm3/1000 strokes :	77.0	cm3/1000 strokes : 5.0
Tolerance cm3/1000 str. + :	1.5	IDLE DELIVERY
Check tolerance cm3/1000s. +-:	3.5	Rated speed rpm : 450  Del. quantity
Shutoff solenoid Volt :	12	+ cm3/1000 strokes : 1.5 + Tolerance
Rated speed rpm :	500	cm3/1000 str. + : 1.5 Check tolerance
Aneroid pressure		+ cm3/1000s. +-: 1.5
hPa : Del. quantity	1500	+ Shutoff solenoid + Volt : 12
cm3/1000 strokes :	103.0	+

### START TRANSITION

Rated speed rpm : 200

Del. quantity

cm3/1000 strokes : 88.0

Tolerance

cm3/1000 str. + : 5.0

Shutoff solenoid

Volt : 12

# ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : KOT
Dimension MS mm : 1,4
Tolerance mm + : 0,2

# CONTROL LEVER POSITION

SET

Control lever

position YA mm : 32,8..34,8

Control lever

position YB mm : 40,7..47,3

End of test-specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19.12.96 Edition Test oil : ISO 4113

: 0 460 426 264 Part no. Pump designation: VE6/12F1100R729-2

Customer—spec. information

Customer : NH

: EP040B-F125 Motor Power KW 96.0

#### TEST BENCH REQUIREMENTS

Calibrating-oil

return

temperature \*C Tolerance \*C + :

Overflow

0.75 restriction mm :

Inlet press. bar : Tolerance bar + :

Test nozzle holde

: 1 688 901 110 assembly

Opening pressure

Tolerance bar + :

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter: 2.00 x length mm : 840

### REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm: 1,0 Outlet

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600

1.6 Setting mm Tolerance mm +-: 0.2 Shutoff solenoid

Volt 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 600 Supply pomp

pressure bar 5.5 Tolerance bar +-: 0.2

Shutoff solenoid

12 Volt

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm 600 Rated speed rpm 800

Del. quantity cm3/1000 strokes : 75.0

Del. quantity

cm3/1000 strokes : 0.08

Tolerance

cm3/1000 str. + :0.5 Tolerance

cm3/1000 str. +-: 0.5

Spread

5.0 cm3/1000 strokes :

Shutoff solenoid

Volt 12 Shutoff solenoid

Volt 12

IDLE SETTING

Rated speed rpm : 375 Del. quantity

cm3/1000 strokes :

15.0

Tolerance

cm3/1000 str. +-: 0.5

Shutoff solenoid

12 Volt

Spread

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. 5.0

FULL-LOAD SPEED REGULATION +	Shutoff solenoid Volt : 12
Rated speed rpm : 1150	OVERFLOW QUANTITY
Del. quantity +	
cm3/1000 strokes : 65.0 + Tolerance	Rated speed rpm : 1100 Overflow quantity
cm3/1000 str. +: 0.5 + Shutoff solenoid +	ccm/10s : 130.5 Tolerance
Volt : 12	ccm/10s + : 27.7
STARTING FUEL DELIVERY	Check tolerance ccm/10s +-: 27.7
Rated speed rpm : 100	Shutoff solenoid
Del. quantity + cm3/1000 strokes : 110.0 +	Volt : 12
Tolerance + cm3/1000 str. + : 25.0 +	Rated speed rpm : 475 Overflow quantity
Shutoff solenoid + 12 + 12	ccm/10s : 108.3 Tolerance
1	ccm/10s + : 16.6
	Check tolerance
INJECTION-PUMP TEST SPECIFICATIONS	Shutoff solenoid Volt : 12
+	
TIMING DEVICE CHARACTERISTIC +	DELIVERY AND BREAKAWAY CHARACTERISTIC
Rated speed rpm : 750	Rated speed rpm : 1150 Del. quantity
SV travel mm : 2.2 + Tolerance mm +: 0.4	cm3/1000 strokes : 65.0 Tolerance
Check tolerance mm +: 0.7	cm3/1000 str. +-: 0.5 Check tolerance
Shutoff solenoid Volt : 12	cm3/1000s. + : 8.0 Shutoff solenoid
+	Volt : 12
Rated speed rpm : 475	Rated speed rpm : 1190
SV travel mm : 1.1 + Tolerance mm + : 0.4	Del. quantity cm3/1000 strokes : 33.0
Check + tolerance mm +-: 0.7 +	Tolerance
Shutoff solenoid	Check tolerance cm3/1000s. +-: 12.0
SUPPLY PUMP PRESSURE CHARACTERISTIC +	Shutoff solenoid Volt : 12
+	
Rated speed rpm : 1100 + Supply pomp +	Rated speed rpm : 1220 Del. quantity
pressure bar : 7.8 + Tolerance bar + : 0.3 +	cm3/1000 strokes : 1.5 Tolerance
Shutoff solenoid + 12 + 12	cm3/1000 str. + : 1.5 Check tolerance
Rated speed rpm : 475	cm3/1000s. + : 1.5 Shutoff solenoid
Supply pomp + 4.9	Volt : 12
Tolerance bar +: 0.3	Rated speed rpm : 1100

Del. quantity	
	+ Tolerance
cm3/1000 strokes : 71.0	+ cm3/1000 str. + : 1.5
Tolerance	+ Spread
cm3/1000 str. +-: 2.0	+ cm3/1000 strokes : 5.0
Check tolerance	+ Check tolerance
cm3/1000s. + : 3.5	+ cm3/1000s. $+-$ : 1.5
Shutoff salenaid	+
Volt : 12	- IDLE DELIVERY
	1
Rated speed rpm : 500	Rated speed rpm : 460
Del. quantity	+ Del. quantity
cm3/1000 strokes : 67.0	- cm3/1000 strokes : 1.5
Tolerance	+ Tolerance
cm3/1000 str. + : 6.0	- cm3/1000 str. +-: 1.5
Check tolerance	Check tolerance
m.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- cm3/1000s. +-: 1.5
Shutoff solenoid	+ Shutoff solenoid
Valt : 12	+ Valt : 12
Dated an ad mar. (36	†
Rated speed rpm : 475	†
Del. quantity	†
cm3/1000 strokes : 68.5	†
Tolerance	+
cm3/1000 str. + : 3.0	+
Check tolerance	+ START TRANSITION
cm3/1000s. + : 5.0	+
Shutoff solenoid	+ Rated speed rpm : 440
Volt : 12	+ Del. quantity
	+ cm3/1000 strokes : 72.0
Rated speed rpm : 800	+ Tolerance
Del. quantity	+ cm3/1000 str. $+$ : 10.0
cm3/1000 strokes : 80.0	+ Shutoff solenoid
Tolerance	+ Volt : 12
cm3/1000 str. +-: 0.5	1
Check tolerance	1
	Debad speed sup . 200
cm3/1000s +- · 3.0	+ Kated speed rom · /all
cm3/1000s. + : 3.0	+ Rated speed rpm : 250
Shutoff salenoid	+ Del. quantity
	Del. quantity cm3/1000 strokes : 130.0
Shutoff salenoid	Del. quantity cm3/1000 strokes : 130.0 Tolerance
Shutoff salenoid	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0
Shutoff salenoid Volt : 12	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid
Shutoff salenoid Volt : 12  ELECTR. SHUTOFF	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0
Shutoff salenoid Volt : 12	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm : 3,7
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm : 3,7 Tolerance mm +-: 0,1
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. ÷ : 1.5	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm : 3,7 Tolerance mm +-: 0,1 Dimension KF mm : KOT
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: +: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. +: 1.5 Check tolerance cm3/1000s. +: 1.5	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm : 3,7 Tolerance mm +-: 0,1 Dimension KF mm : KOT
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. +: 1.5 Check tolerance cm3/1000s. +: 1.5 Spread	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: +: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. +: 1.5 Check tolerance cm3/1000s. +: 1.5	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: +: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Spread cm3/1000 strokes : 5.0	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: +: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. +: 1.5 Check tolerance cm3/1000s. +: 1.5 Spread	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: 4: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2  CONTROL LEVER POSITION
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Spread cm3/1000 strokes : 5.0  FULL-LOAD STOP CONTROL LEVER	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: +: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. + : 1.5 Check tolerance cm3/1000s. + : 1.5 Spread cm3/1000 strokes : 5.0	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: 4: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2  CONTROL LEVER POSITION
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. ÷ : 1.5 Check tolerance cm3/1000s. ÷ : 1.5 Spread cm3/1000 strokes : 5.0  FULL-LOAD STOP CONTROL LEVER  Rated speed rpm : 375 Del. quantity	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: 4: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2  CONTROL LEVER POSITION
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. ÷ : 1.5 Check tolerance cm3/1000s. ÷ : 1.5 Spread cm3/1000 strokes : 5.0  FULL-LOAD STOP CONTROL LEVER  Rated speed rpm : 375	Del. quantity cm3/1000 strokes: 130.0 Tolerance cm3/1000 str. +-: 20.0 Shutoff solenoid Volt: 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm: 3,7 Tolerance mm: 4: 0,1 Dimension KF mm: KOT Dimension MS mm: 1,4 Tolerance mm: +: 0,2  CONTROL LEVER POSITION
Shutoff solenoid Volt : 12  ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP  Rated speed rpm : 375 Del. quantity cm3/1000 strokes : 1.5 Tolerance cm3/1000 str. ÷ : 1.5 Check tolerance cm3/1000s. + : 1.5 Spread cm3/1000 strokes : 5.0  FULL-LOAD STOP CONTROL LEVER  Rated speed rpm : 375 Del. quantity	Del. quantity cm3/1000 strokes : 130.0 Tolerance cm3/1000 str. +- : 20.0 Shutoff solenoid Volt : 12  ASSEMBLY AND ADJUSTMENT DIMENSIONS  Dimension K mm : 3,7 Tolerance mm +- : 0,1 Dimension KF mm : KOT Dimension MS mm : 1,4 Tolerance mm +- : 0,2  CONTROL LEVER POSITION SET

Control lever position YB mm	: 39,646,2

End of test-specification sheet

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA

Edition : 13,11.96

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/10F2100R675

Type number : 0 460 404 085

Customer Part-No. :

Customer—specific information Customer : IVECO-SOFIM

Engine : 8140,67.3700

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return>temp. > °C

with>thermometer> : 40.00...48.00 Electronically> : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly> : 1 688 901 022

Opening |

Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall>thickness : 2.00 x Length> mm: 450

Start of delivery

Prestroke mm: 0.2

> (from BDC): +-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Setting value mm: 2.60...2.80

Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 5.50...6.10

Shutoff

electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500

Del. quantity cm3/

> 1000s.: 43.0...44.0

Shutoff

electromagnet>Volt: 12 Dispersion cm3/: 3.0 > 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

> 1000s.: 13.0...17.00

Shutoff

electromagnet>Volt: 12 Del. quantity cm3/: 3.0 > 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300

Del. quantity cm3/

> 1000s.: 30.0...34.0

Shutoff

electromagnet>Volt: 12

Start:

Speed 1/min: 198

Del. quantity cm3/: 50.0...100.0

mind> 1000s.: 60.0

Shutoff

electromagnet>Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-qty. cm3/

difference> 1000S.: - 9.0...11.0 \*

Shutoff

electromagnet>Volt: 12 SP press.-dif.measurement

1st speed 1/min: 1250

Supply pump

pressure>

difference> bar: - 0.1...0.3 \*

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

		+	Del. quantity cm3/	: 30.034.0
Timing-device charac	cteristic:	+		: (26.038.0)
		+	4th speed 1/min	: 2100
1st speed 1/min:	1000	1	Shutoff	
	0.61.2	1	electromagnet>Volt	: 12
	(0.21.6)	1	Del. quantity cm3/	43.046.0
electromagnet>Volt:		1	> 1000s.	(42.047.0)
2nd speed 1/min:		1	5th speed 1/min	
	2.62.8	7	Shutoff	. 1500
	(2.13.3)	1	electromagnet>Volt	• 12
Shutoff	(2.113.3)	-1	Del. quantity cm3/	
electromagnet>Volt:	12	$\mathbf{I}$		(41.545.5)
3rd speed 1/min:		I		: 1000
		I	Shutoff	• '000
TD travel mm:	(6,78.1)	T		. 12
	(0.70.1)	T	electromagnet>Volt	
Shutoff	43	· †	Del. quantity cm3/	: 37.342.3
electromagnet>Volt:	12	<b>T</b>		: (38.543.5)
		+	10th speed 1/min	: 600
Supply-pump pressure	e characteristic:	Ť	Shutoff	40
	288	t	electromagnet>Volt	
1st speed 1/min:	600	+	Del. quantity cm3/	
Supply-pump		+	> 1000s.	: (33.539.5)
	3.03.6	+		
Shutoff		+		
electromagnet>Volt:	12	+		
2nd speed 1/min:	1250	+	Electr. shutoff:	
Supply-pump		+		
	5.56.1	+	1st speed 1/min	
Shutoff		+	Del. quantity cm3/	: 0.03.0
electromagnet>Volt:	12	+	> 1000s.	: -
3rd speed 1/min:	2000	+	Shutoff	
Supply-pump		+	electromagnet>volt	: -
	7.98.5	+		
Shutoff		+	Idle delivery:	
electromagnet>Volt:	12	+	•	
_		+	1st speed 1/min	: 375
Overflow quantity at	t overflow valve	+	Shutoff	
·		+	electromagnet>Volt	: 12
1st speed 1/min:	600	+	Del. quantity cm3/	
Shutoff		7	> 1000s.	: (10.020.0)
electromagnet>Volt:	12	+		: 3.0
	41.7083.40	+		: (3.0)
quantity> cm3/10s:		+	2nd speed 1/min	
2nd speed 1/min:		4	Shutoff	
Shutoff		1	electromagnet>Volt	: 12
electromagnet>Volt:	12	1	Del. quantity cm3/	
	55.60139.00	+		: (0.003.00)
quantity> cm3/10s:		1	3rd speed 1/min	
444110107	(10.00)	1	Shutoff	
Delivery-quant. and	hreakaway char.:	1	electromagnet>Volt	: 12
beervery quarter and	Di Callanay Citation	1	Del. quantity cm3/	
		1		(21.033.0)
2nd speed 1/min:	2600	1	. 10003.	. (
Shutoff		1	Load-dependent sta	nt of delivery.
electromagnet Volt:	12	$\mathbf{I}$	Injqty.dif.measu	
Del. quantity cm3/:		I	Tille divini i illegan	CHICITE .
	(0.003.00)	Ι	1st speed 1/min	• 1250
		I	Injqty. cm3/	
	2300	T	difference> 1000s.	
Shutoff electromagnet>Volt:	12	Ţ	Shutoff	•
e cecurumaunetzvoit:	14		SHULUI I	

electromagnet>Volt: 12 2nd speed 1/min: 1250 cm3/: 4.0...6.0 ' Z Inj.-qty. difference> 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: 1/min: 1250 1st speed : -0.2..0.4 " TD-travel difference> mm: -Shutoff electromagnet>Volt: 12 2nd speed 1/min: 1250 : 0.0...0.4 'Z TD-travel difference> mm: -Shutoff electromagnet>Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 500 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 25.0...45.0 1000s.: -1/min: 300 2nd speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 47.0...67.0 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 60.0...100.0 1000s.: -Shutoff electromagnet: Cut-in >min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: -KF mm: 5.6...6.0 mm: 1.7...1.9 MS mm: 37.9...39.9 Ya mm: 42.9...48.1 Yb Remarks:

Ya = Distance between VE flange and

speed-control lever in idle

position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF

Edition : 24.10.96

réplaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R535-1

Type number : 0 460 414 129

Customer Part-No. :

Customer-specific information

: IVECO-SOFIM Customer

: 8140.47.2210 Engine

KW: 83.0 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return>temp. > °C

with>thermometer> : 40.00 ... 48.00 Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 907 027 assembly>

Opening |

bar: 247.00...253.00 Pressure>

Perforated-plate

diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall>thickness : 2.00

mm: 450 x Lenath>

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1400

Charge press. hPa: 1000

Setting value mm: 3.20...3.40

Shutoff

electromagnet>Volt: 12

Supply-pump pressure

1/min: 1400

Charge press hPa: 1000

Setting value bar: 6.80...7.40

Shutoff

electromagnet>Volt: 12

Full-load del. with charge press.:

1/min: 1750 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 61.50...62.50

Shutoff

electromagnet>Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550

Del. quantity cm3/

1000s.: 25.50...26.50 >

Shutoff

electromagnet>Volt: 12

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet>Volt: 12 Del. quantity cm3/: 6.0 10003.: (6.5)

Full-load speed regulation

1/min: 2175 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 24.00...30.00

Shutoff

electromagnet>Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...90.00

mind> 1000s.: 40.00

Shutoff

electromagnet>Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

3rd speed 1/min: 1900 Speed 1/min: 1400 Charge press. hPa: 1000 hPa: -Charge press Supply-pump bar: 8.50...9.10 Inj.-qty. cm3/pressure> difference> 1000s.: -15.5...17.5 \* Shutoff Shutoff electromagnet>Volt: 12 electromagnet>Volt: 12 SP press.-dif.measurement Overflow quantity at overflow valve 1/min: 1400 1/min: 500 1st speed 1st speed Charge press. hPa: 1000 Charge press hPa: -Supply pump Shutoff pressure> electromagnet>Volt: 12 difference> bar: -0.1...0.3 \* : 41.70...83.40 Overflow Shutoff quantity> cm3/10s: (26.70...98.40) 1/min: 1900 electromagnet Volt: 12 2nd speed Charge press. hPa: 1000 Inspection pump test specifications Shutoff Test specifications in parentheses electromagnet>Volt: 12 Overflow : 55.60...139.00 Timing-device characteristic: quantity> cm3/10s: (40.60...154.00) 1/min: 1250 1st speed Delivery-quant. and breakaway char.: Charge press hPa: 1000 mm: 2.00...2.60 TD travel mm: (1.60...3.00) 1st speed 1/min: 800 electromagnet>Volt: 12 2nd speed 1/min: 1400 Charge-air pressure-setting hPa: 400 point> hPa: 1000 LDA-stroke mm: 6.4 Charge press mm: 3.20...3.40 Shutoff TD travel mm: (2.60...4.00) electromagnet>Volt: 12 Shutoff Del. quantity cm3/: 48.50...49.50 1000s.: (45.50...52.50) electromagnet>Volt: 12 > 1/min: 1600 hPa: 1000 1/min: 2325 3rd speed 2nd speed Charge press. hPa: 1000 Charge press mm: 4.20...4.80 Shutoff TD travel mm: (3.80...5.20) electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet>Volt: 12 1000s.: (0.00...3.00) 4th speed 1/min: 1900 3rd speed 1/min: 2175 Charge press hPa: 1000 Charge press. hPa: 1000 mm: 4.60...5.20 Shutoff TD travel mm: (4.20...5.60) electromagnet>Volt: 12 Del. quantity cm3/: 24.0...30.0 Shutoff 1000s.: (22.5...31.5) electromagnet>Volt: 12 1/min: 2100 4th speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff 1st speed 1/min: 800 electromagnet>Volt: 12 Del. quantity cm3/: 37.0...45.0 > 1000s.: (35.0...47.0) Charge press. hPa: 1000 Supply-pump 1/min: 1900 bar: 4.60...5.20 5th speed pressure> Charge press. hPa: 1000 Shutoff Shutoff electromagnet>Volt: 12 2nd speed 1/min: 1400 electromagnet>Volt: 12 Charge press. hPa: 1000 Del. quantity cm3/: 59.50...64.50 1000s.: (58.50...65.50) Supply-pump 1/min: 1750 bar: 6.80...7.40 pressure> 6th speed Charge press. hPa: 1000 Shutoff Shutoff electromagnet>Volt: 12

electromagnet>Volt: 12	+ difference> 1000s.: -
Del. quantity cm3/: 61.562.5	Shutoff
> 1000s.: (58.565.5)	+ electromagnet Volt: 12
7th speed 1/min: 1250	+
Charge press. hPa: 1200	+ TD-travel dif.measurement:
Shutoff	+
electromagnet>Volt: 12	+ 1st speed 1/min: 1400
Del. quantity cm3/: 56.561.5	+ Charge press. hPa: -
> 1000s.: (55.063.0)	+ TD-travel : -0.81.0 "
8th speed 1/min: 550	+ difference> mm: -
Charge press. hPa: - Shutoff	+ Shutoff + electromagnet>Volt: 12
electromagnet>Volt: 12	2nd speed 1/min: 1400
Del. quantity cm3/: 25.5026.50	Charge press. hPa: -
> 1000s.: (22.5029.50)	+ TD-travel : -1.01.8 '
9th speed 1/min: 800	+ Shutoff
Charge press. hPa: 1000	+ electromagnet>Volt: 12.0
Shutoff	+
electromagnet>Volt: 12	Part-load del.at 3rd injqty.
Del. quantity cm3/: 55.064.0	+
> 1000s.: (54.065.0)	+ stop (EGR set)
	†
	†
Electric chidoffi	+ Spacing mm: 12.0
Electr. shutoff:	1st speed 1/min: 1200
1st speed 1/min: 325	Charge press. hPa: -
Charge press. hPa: -	+ Shutoff
Del. quantity cm3/: 0.003.00	- electromagnet>Volt: 12
> 1000s.; (0.003.00)	Del. quantity cm3/: 17.019.0
Shutoff	+ > 1000s.: (15.520.5)
electromagnet>volt: -	+
-	+ Automatic starting fuel delivery:
Idle delivery:	t
4	1st speed 1/min: 200
1st speed 1/min: 325	+ Shutoff
Shutoff	+ electromagnet>Volt: 12 + Del. quantity cm3/: 55.0105.0
electromagnet>Volt: 12 Del. quantity cm3/: 8.0012.00	1000s.: -
> 1000s.: (6.0014.00)	I , 1000
Dispersion cm3/: 6.0	2nd speed 1/min: 500
> 1000s.: (6.5)	+ Charge press. hPa: -
2nd speed 1/min: 450	+ Shutoff
Shutoff	+ electromagnet>Volt: 12.0
electromagnet>Volt: 12	+ Dei. quantity cm3/: 14.030.0
Del. quantity cm3/: 0.003.00	+ > 1000s.: -
> 1000s.: -	† China see a la sancia del sancia de la sancia de la sancia del sancia del sancia del la sancia del
tand damandama manas as data	+ Shutoff electromagnet:
Load-dependent start of delivery: Injqty.dif.measurement:	Cut-in
injqty.dii.measurement:	- min voltage : 10.0
1st speed 1/min: 1400	Rated voltage : 12.0
Charge press. hPa: -	- Mateur votage
Injqty. cm3/ : -16.022.0"	Mounting and assembly dimensions:
difference> 1000s.: (-15.023.0) "	+
Shutoff	→ Designation
electromagnet>Volt: 12	+ K mm: K1
2nd speed 1/min: 1400	+ KF mm: KOT
Charge press. hPa: -	+ MS1 mm: 1.41.7
Inj.—qty. cm3/: 2.08.0 Z '	+ LDA stroke mm: 6.4

Ya mm: 33.0...35.0 Yb mm: 46.4...52.4

# Potentiometer adjustment:

Angle for pot. > \*: 25 Supply voltage pot. > volt: 5.0 Output volt pot. > volt: 3.3

#### Remerks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX

: 14,10.96 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R653-1

Type number : 0 460 414 160

Sustamer Part-No. :

Customer-specific information

Customer : MAXTON

Engine : HS 4

Power KW: 70.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return>temp. > °C

with>thermometer> : 54.00 ... 56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 116 assembly>

Opening

bar: 204.00...210.00 Pressure>

Perforated-plate

diameter> mn: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall>thickness : 2.00

mm: 450 x Lenath>

Start of delivery

Prestroke mm: -

(from BDC): -

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Charge press. hPa: 1200

Setting value mm: 2.10...2.30

Shutoff

electromagnet>Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Charge press hPa: 1200

Setting value bar: 6.50...7.49

Shutoff

electromagnet>Volt: 12

Full-load del. with charge press.:

1/min: 1150 Speed

Charge press. hPa: 1200

Del. quantity cm3/

1000s.: 68.00...69.00 >

Shutoff

electromagnet>Volt: 12 cm3/: 3.0 Dispersion

1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 48.00...49.00

Shutoff

electromagnet>Volt: 12

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 12.00...16.00 >

Shutoff

electromagnet>Volt: 12 Del. quantity cm3/: 4.0

1000s.: (5.0)

Full-load speed regulation

1/min: 2150 Speed Charge press hPa: 1200

Del. quantity cm3/

1000s.: 44.00...48.00

Shutoff

electromagnet>Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 44.00...94.00

1000s.: 44.00 mind>

Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	† quantity> cm3/10s: (40.60154.00)
1st speed 1/min: 1500	Delivery-quant. and breakaway char.:
Charge press hPa: 1200	+
TD travel mm: 2.102.30	4
> mm: (1.702.70)	1st speed 1/min: 700
electromagnet>Volt: 12	+ Charge-air pressure-setting
2nd speed 1/min: 1900	+ point> hPa: 600
Charge press hPa: 1200	+ LDA-stroke mm: 6,8
TD travel mm: 4.705.30	+ Shutoff
> mm: (4.405.60)	electromagnet>Volt: 12
Shutoff	Del. quantity cm3/: 63.5064.50
electromagnet>Volt: 12	> 1000s.: (61.0067.00)
3rd speed 1/min: 2100	+ 2nd speed 1/min: 2450
Charge press hPa: 1200	Charge press. hPa: 1200
To travel mm: 5.706.30	Shutoff
> ma: (5.406.60)	
	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet>Volt: 12	+ > 1000s.: (0.003.00)
A	+ 3rd speed 1/min: 2300
Supply-pump pressure characteristic:	+ Charge press. hPa: 1200
A	+ Shutoff
1st speed 1/min: 600	+ electromagnet>Volt: 12
Charge press. hPa: 1200	+ Del. quantity cm3/: 19.529.5
Supply-pump	+ > 1000s.: (18.530.5)
pressure> bar: 3.203.80	+ 4th speed 1/min: 2150
Shutoff	+ Charge press. hPa: 1200
electromagnet>Volt: 12	+ Shutoff
2nd speed 1/min: 1000	+ electromagnet>Volt: 12
Charge press. hPa: 1200	+ Del. quantity cm3/: 44.048.0
Supply-pump	+ > 1000s.: (41.051.0)
pressure> ber: 4.705.30	+ 5th speed 1/min: 1900
Shutoff	+ Charge press. hPa: 1200
electromagnet>Volt: 12	+ Shutoff
3rd speed 1/min: 1500	+ electromagnet>Volt: 12
Charge press. hPa: 1200	Del. quantity cm3/: 66.5070.50
Supply-pump	+ > 1000s.: (65.5071.50)
pressure> bar: 6.507.10	+ 6th speed 1/min: 1150
Shutoff	Charge press. hPa: 1200
electromagnet>Volt: 12	+ Shutoff
4th speed 1/min: 1900	electromagnet>Volt: 12
Charge press. hPa: 1200	Del. quantity cm3/: 68.069.0
	1000s.: (65.071.0)
Supply-pump pressure> bar: 7.808.40	7th speed 1/min: 900
Shutoff	+ Charge press. hPa: 1200 + Shutoff
electromagnet>Volt: 12	
Annual or annual to the annual or training	+ electromagnet>Volt: 12
Overflow quantity at overflow valve	+ Del. quantity cm3/: 66.071.0
4	+ > 1000s.: (64.572.5)
1st speed 1/min: 500	8th speed 1/min: 500
Charge press. hPa: -	+ Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet>Volt: 12	+ electromagnet>Volt: 12
Overflow : 41.7083.40	+ Del. quantity cm3/: 48.0049.00
quantity> cm3/10s: (26.7098.40)	+ > 1000s.: (45.5051.50)
2nd speed 1/min: 1900	†
Charge press. hPa: 1200	+
Shutoff	+
electromagnet>Volt: 12	+ Electr. shutoff:
Overflow : 55.60139.00	+

1st speed 1/min: 350 Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet>volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 12.00...16.00 1000s.: (9.00...19.00) cm3/: 4.0 Dispersion 1000s.: (5,0) 1/min: 310 2nd speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 28.0...37.0 1000s.: (26.0...40.0) 3rd speed 1/min: 430 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 0.0...3.0 1000s .: -Automatic starting fuel delivery: 1/min: 250 1st speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 22.00...72.00 Shutoff electromagnet: Cut-in >min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 2,7...2,9 LDA stroke mm: 6,8 mm: 43.5...47.5 Ya mm: 51.0...62.0 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position
Measurement point = edge of control
Lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : PER Edition : 12.11.96 replaces : ISO-4113 Calibrating oil : VE6/1251250R654 Injection pump : 0 460 426 247 Type number Customer Part-No.: 2645F020 Customer-specific information : PERKINS Customer : 1006E.6T Engine Power KW: 120 TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return>temp. > °C with>thermometer> : 40.00...48.00 Electronically> : 42.00...50.00 Inlet press., bar : 0.30...0.40 Calibrating nozzle-holder : 1 688 901 027 assembly> Opening bar: 247.00...253.00 Pressure> Perforated-plate mm: 0.5 diameter> Test inj. tubing : 1 680 750 073 Outside diameter : 6.00 x Wall>thickness : 2.00 mm: 450 x Length> Start of delivery Prestroke mm: -> (from BDC): -Start of delivery block

1/min: 1000 Speed Charge press. hPa: 1500 Setting value so: 1,6...1,8 Shutoff electromagnet>Volt: 12 Supply-pump pressure 1/min: 1000 Speed Charge press hPa: 1500 Setting value bar: 6,60...7,20 Shutoff electromagnet>Volt: 12 Full-load del. with charge press.: 1/min: 900 Charge press. hPa: 1500 Del. quantity cm3/ 1000s.: 66,50...67.50 Shutoff electromagnet>Volt: 12 cm3/: 5.0Dispersion 1000s.: (5.0) Full-load del. w/out charge press.: 1/min: 400 Speed Del. quantity cm3/ 1000s.: 49.0...50.0 Shutoff electromagnet>Volt: 12.0 Low-idle speed regulation 1/min: 300 Speed Del. quantity cm3/ 1000s.: 13,00...17.00 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 6.5 1000s.: (6,5) Full-load speed regulation 1/min: 1325 Speed Charge press hPa: 1500 Del. quantity cm3/ 1000s.: 42.00...48.00 Shutoff electromagnet>Volt: 12.0 Start: 1/min: 110 Speed Del. quantity cm3/: 80.00...140.00 mind> 1000s.: 80.00

Shutoff

electromagnet>Volt: 12

Outlet >

Piston stroke mm: 1.0

Timing-device travel

Injection pump setting values
Test specifications in parentheses

Delivery-quant. and breakaway char.: Inspection-pump test specifications Test specifications in parentheses 1st speed 1/min: 450 Timing-device characteristic: Charge-air pressure-setting hPa: 350 point> mm: 5.7 1/min: 900 LDA-stroke 1st speed hPa: 1500 Shutoff Charge press mm: 0,40...1.00 electromagnet>Volt: 12 TD travel mm: (0.00...1,40) Del. quantity cm3/: 60.0...61.0 electromagnet>Volt: 12 1000s.: (57.0...64.0) > 1/min: 1000 2nd speed 1/min: 1420 2nd speed hPa: 1500 Charge press. hPa: 1500 Charge press mm: 1,60...1,80 Shutoff TD travel mm: (1,10...2,30) electromagnet Volt: 12 Shutoff Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet>Volt: 12 1/min: 1100 3rd speed 1/min: 1375 Charge press hPa: 1500 Charge press. hPa: 1500 mm: 2.10...2.90 Shutoff TD travel mm: (1.80...3,20) electromagnet>Volt: 12 Del. quantity cm3/: 9.00...29.00 Shutoff 1000s.: (5.00...33.00) electromagnet>Volt: 12 1/min: 1325 4th speed Charge press. hPa: 1500 Supply-pump pressure characteristic: Shutoff 1st speed 1/min: 500 electromagnet>Volt: 12 Del. quantity cm3/: 42.0...48.0 > 1000s.: (39.0...51.0) 5th speed 1/min: 1250 Charge press. hPa: 1500 Supply-pump bar: 4,30...4,90 pressure> Charge press. hPa: 1500 Shutoff Shutoff electromagnet>Volt: 12 1/min: 1000 2nd speed electromagnet>Volt: 12 Charge press. hPa: 1500 Del. quantity cm3/: 65.00...70.00 1000s.: (64.00...71.00) Supply-pump 1/min: 900 bar: 6.60...7.20 6th speed pressure> Charge press. hPa: 1500 Shutoff electromagnet>Volt: 12 Shutoff 1/min: 1250 electromagnet>Volt: 12 3rd speed Del. quantity cm3/: 66.5...67.5 Charge press. hPa: 1500 1000s.: (63.5...70.5) Supply-pump bar: 7.60...8,20 7th speed 1/min: 500 pressure> Charge press. hPa: 1500 Shutoff Shutoff electromagnet>Volt: 12 electromagnet>Volt: 12 Del. quantity cm3/: 62.5...68.5 Overflow quantity at overflow valve 1000s.: (61.5...69.5) 1/min: 400 8th speed 1/min: 400 1st speed Charge press. hPa: -Charge press. hPa: -Shutoff Shutoff electromagnet>Volt: 12 electromagnet>Volt: 12 Del. quantity cm3/: 49.0...50.0 : 41.70...86.10 Overflow quantity> cm3/10s: (26.70...101.10) 1000s.: (46.0...53.0) 1/min: 1250 2nd speed Charge press. hPa: 1500 Shutoff Electr. shutoff: electromagnet>Volt: 12 : 55.60...139.00 Overflow 1/min: 300 quantity> cm3/10s: (40.60...154.00) 1st speed Del. quantity cm3/: 0.00...3.00

> 1000s.: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 13.0...17.0 1000s.: (9.0...21.0) cm3/: 6.5 Dispersion 1000s.: (6.5) 2nd speed 1/min: 400 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 0.00...3.00 > 1000s.: (0.00...3.00) 3rd speed 1/min: 275 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 16.0...24.0 1000s.: (15.0...25.0) Automatic starting fuel delivery: 1/min: 110 1st speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 80.00...140.00 > 1000s.: (80.00...140.00) 2nd speed 1/min: 150 Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 75.0...145.0 1000s.: (75.00...145.0) 1/min: 280 3rd speed Shutoff electromagnet>Volt: 12 Del. quantity cm3/: 28.0...68.0 1000s.: (28.0...68.0) > Shutoff electromagnet: Cut-in >min voltage : 10.0 Rated voltage : 12.0 Remarks:

Shutoff BOSCH-INJ.-PUMP TEST SPECIFICATIONS electromagnet>Volt: 24 Note inst. in remarks column Supply-pump pressure Test sheet : FIA 1/min: 1000 Speed : 13.11.96 Edition Charge press hPa: 1000 replaces Setting value bar: 6,50...7,10 Calibrating oil : ISO-4113 KSB/AFB valve Volt: 24 Injection pump : VE6/12F1350R674 Shutoff Type number : 0 460 426 255 electromagnet>Volt: 24 Customer Part-No. : Full-load del. with charge press.: Customer-specific information 1/min: 650 Speed Customer : IVECO-FIAT Charge press. hPa: 1000 Del. quantity cm3/ Engine : 8060.45.5000 1000s.: 62.00...63.00 KSB/AFB TEST BENCH REQUIREMENTS valve Volt: 24 Shutoff Overflow restricti: 1 463 456 303 electromagnet>Volt: 24 cm3/: 3.5 Dispersion Calibrating-oil 1000s.: (5.0) return>temp. > °C with>thermometer> : 54.00...56.00 Full-load del. w/out charge press.: Inlet press., bar : 0.30...0.40 1/min: 500 Speed Del. quantity cm3/ 1000s.: 52.0...53.0 Calibrating nozzle-holder > : 1 688 901 027 assembly> KSB/AFB 11 valve > Volt: 24 Opening Shutoff Pressure> bar: 247.00...253.00 electromagnet>Volt: 24.0 Perforated-plate Low-idle speed regulation diameter> mm: 0.5 1/min: 350 Speed Del. quantity cm3/ 1000s.: 14.50...18.50 Test inj. tubing : 1 680 750 073 > KSB/AFB > Volt: 24 Outside diameter : 6.00 valve x Wall>thickness : 2.00 Shutoff mm: 450 electromagnet>Volt: 24 x Length> Del. quantity cm3/: 4.0 Start of delivery 1000s.: 5.05) Prestroke mm: -> (from BDC): -Full-load speed regulation 1/min: 1550 Injection-pump setting values Speed Test specifications in parentheses Charge press hPa: 1000 Del. quantity cm3/ Timing-device travel 1000s.: 12.00...16.00 > KSB/AFB 1/min: 1000 valve > Volt: 24 Speed Charge press. hPa: 1000 Shutoff Setting value mm: 1,4...1,6 electromagnet>Volt: 24.0 AFB/AFB Volt: 24 valve > Start:

	Lyoptern
Speed 1/min: 100	+ KSB/AFB
Speed 1/min: 100 Del. quantity cm3/: 33.00830.00	+ valve > Volt: 24 + Shutoff
mind> 1000s.: 33.00	+ electromagnet>Volt: 24
KSB/AFB	+ 3rd speed 1/min: 1100
Valve > Volt: 24	+ Charge press. hPa: 1000
Shutoff	+ Supply-pump
electromagnet>Volt: 24	+ pressure> bar: 7.007.60
cecer and recover by	+ KSB/AFB
Inspection-pump test specifications	+ valve > Volt: 24
Test specifications in parentheses	+ Shutoff
to the specific to the partition of	+ electromagnet>Volt: 24
Timing-device characteristic:	-
	+ Overflow quantity at overflow valve
1st speed 1/min: 340	+
Charge press hPa: 1000	+ 1st speed 1/min: 500
TD travel mm: 1,802,20	+ Charge press. hPa: 1000
> mm: -	+ KSB/AFB
KSB/AFB	+ valve > Volt: 24
valve > Volt: -	+ Shutoff
electromagnet>Volt: 24	+ electromagnet>Volt: 24
2nd speed 1/min: 470	+ Overflow : 41.7086.10
Charge press hPa: 1000	+ quantity> cm3/10s: (26.70101.10)
TD travel mm: 2,603,80	+ 2nd speed 1/min: 1350
> mm: -	+ Charge press. hPa: 1000
KSB/AFB	+ KSB/AFB
<pre>valve &gt; Volt: - Shutoff</pre>	+ valve > Volt: 24 + Shutoff
electromagnet>Volt: 24 3rd speed   1/min: 1000	+ electromagnet>Volt: 24 + Overflow : 55.60139.00
Charge press hPa: 1000	quantity> cm3/10s: (40.60154.00)
TD travel mm: 1.401.60	T quantity thorios. (40.001)4.007
> mm: (1.002.00)	Delivery-quant. and breakaway char.:
KSB/AFB	dianter and breakandy onarr.
valve > Volt: 24	+
Shutoff	+ 2nd speed 1/min: 1600
electromagnet>Volt: 24	+ Charge press. hPa: 1000
4th speed 1/min: 1100	+ KSB/AFB
Charge press hPa: 1000	+ valve > Volt: 24
TD travel mm: 2.32.9	+ Shutoff
> mm: (1.93.3)	+ electromagnet Volt: 24
KSB/AFB	+ Del. quantity cm3/: 0.003.00
valve > Volt: 24	+ > 1000s.: (0.003.00)
Shutoff	+ 3rd speed 1/min: 1550
electromagnet>Volt: 24	+ Charge press. hPa: 1000
Complete name and an about the state of	+ KSB/AFB
Supply-pump pressure characteristic:	+ valve > Volt: 24 + Shutoff
1st speed 1/min: 500	+ electromagnet>Volt: 24
1st speed 1/min: 500 Charge press. hPa: 1000	+ Del. quantity cm3/: 12.016.00
Supply-pump	+ > 1000s.: (8.0020.00)
pressure> bar: 3.404.00	4th speed 1/min: 1500
KSB/AFB	+ Charge press. hPa: 1000
valve > Volt: 24	+ KSB/AFB
Shutoff	+ valve > Volt: 24
electromagnet>Volt: 24	Shutoff
2nd speed 1/min: 1000	+ electromagnet>Volt: 24
Charge press. hPa: 1000	
	+ Del. quantity cm3/: 33.045.0
Supply-pump	+ > 1000s.: (29.049.0)
Supply-pump pressure> bar: 6.507.10	

1	Automatic starting fuel delivery:
	1st speed 1/min: 100
•	KSB/AFB
	valve > Volt: 24
	Shutoff
7 50 50 50)	
	electromagnet>Volt: 24
	Del. quantity cm3/: 33.0083.00
<del>}</del>	> 1000s.: -
	2nd speed 1/min: 140
	KSB/AFB
	valve > Volt: 24
	Shutoff
	elestromagnet>Volt: 24
00 <del> </del>	Del. quantity cm3/: 75.0125.0
000	> 1000s.: -
, +	3rd speed 1/min: 230
	KSB/AFB
•	valve > Volt: 24
	Shutoff
	electromagnet>Volt: 24
•	Del. quantity cm3/: 50.070.0
	> 1000s.: -
$\mathbf{I}$	7 10000
+	Shutoff electromagnet:
n I	Cut-in
00 3 00 T	>min voltage : 20.0
003.00	
T	Rated voltage : 24.0
<b>T</b>	Marymanian and acceptate discussions.
†	Mounting and assembly dimensions:
<b>T</b>	Dani makim
	Designation
4-	v 7 F 7 7
•	K mm: 3.53.7
50 ÷	KF mm: -
50 <del>†</del>	KF mm: — MS1 mm: 1.21.5
50	KF mm: - MS1 mm: 1.21.5 Ya mm: 37.939.9
50	KF mm: — MS1 mm: 1.21.5
50	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50	KF mm: - MS1 mm: 1.21.5 Ya mm: 37.939.9
50	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
5.518.5 1.521.5)	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
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50 5.518.5 1.521.5)	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
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5.518.5 1.521.5)	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
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5.518.5 1.521.5) 0 5.0)	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 5.0	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 5.0 5.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 25 	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 5.0 5.0 6.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 25 	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
3.518.5 1.521.5) 0 3.0) 25	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
50 5.518.5 1.521.5) 0 5.0) 25 	KF mm: — MS1 mm: 1.21.5 Ya mm: 37.939.9 Yb mm: 42.147.3
	.5056.50 1.5058.50) 0 .063.0 9.066.0) 0 .565.5 0.067.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

: MAN Test sheet

Edition : 4.11.1996

Replaces

Test oil : ISO-4113

Combination no. : 0 402 648 977

Injection pump

Pump designation: PE8P120A520LS7818-2

EP type number : 0 412 628 887

Governor

Governor design. : RQV300...1150PA1039

-2K

: 0 421 815 316 Governer no.

Customer-spec. information Customer : MAN

Engine : D2848LE401

: 500.0 1st version kW Rated speed >: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. \*C> : 38...42

Overflow valve

: 1 417 413 025 >

Inlet press., bar: 1.50

Test nozzle holder

assembly> : 1 688 901 019

Opening |

pressure, bar> : 207...210

Orifice plate

diameter mm> : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall>thickness

: 8.00x2.50x1000 x Length mm>

(A) Injection pump setting values

> Insp. values in parentheses

> Set equal delivery quant.

> per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60 : (4.45...4.65)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5- 4

Phasing : 0-45-90-135-180-225-

: 270-315 Phasing Tolerance  $+ - ^{\circ} > : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 32.9...33.1

> 100 s: (32.6...33.4)

Spread cm3 : 0.5

> > 100 s: (0.9)

rpm : 500 2nd speed

Rack travel in mm: 9.6...10.0 Del.quantity cm3/: 16.9...17.1

100 s: (16.6...17.4)

cm3 : 0.4 Spread 100 s: (-) >

rpm : 300 3rd speed Rack travel in mm : 7.0...7.2

Del.quantity cm3/ : 5.2...6.0\*

100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 2.00...2.50 2nd speed rpm : 379

travel mm

: 3.28...3.78

3rd speed rpm : 450

: 4.00...4.50 travel mm

rpm : 795 4th speed

: 6.63...7.13 travel mm

5th speed rpm : 1450

: 13.00...14.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1280

Rack travel in mm : 12.10...14.70

G02

#### FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1150 Speed 1st version Aneroid pressure h: 1500 Aneroid pressure h: 1500 Del.quantity : 329.0...331.0 rpm : 700 1000 : (326.0...334.0) Del.quantity cm3/: 271.0...277.0 1000 s: (272.0...280.0) Spread cm3 : 5.00 1000 : (9.00) cm3 : 8.00 > Spread 1000 s: (12.0) > Aneroid pressure h: 1500 RATED SPEED Speed rpm : 900 Del.quantity cm3/: 299.0...305.0 > 1000 s: (296.0...308.0) 1st version Control lever cm3 : 6.00 position> degrees: 116...124 Spread 1000 s: (12.0) > Setting point: Aneroid pressure h: -Speed rpm : 1280 rpm : 500 Speed Del.quantity cm3/: 169.0...171.0 > 1000 s: (166.0...174.0) Rack travel in mm: 13.4 Testing: 1st rack travel in: 13.40 rpm : 1187...1205 **BREAKAWAY** Speed 2nd rack travel in: 4.00 rpm : 1310...1340 Speed 1st version 4th rack travel in: 1450 1mm rack travel less than rpm : 0.00...1.00Speed full load rack tr: 13.40 LOW IDLE 1 Speed rpm : 1187...1203 Control lever position degrees: 73...81 STARTING FUEL DELIVERY Testing: Speed rpm : 200 rpm : 100 Speed Minimum rack trave: 8.20 Del.quantity cm3/: 100.0...120.0 \* rpm : 300 1000 s: (-) Rack travel in mm : 7.00...7.20 Rack travel in mm : 2.00 Speed rpm : 100 Del.quantity cm3/: 0 \*\* > 1000 s: (-) rpm : 280...410 Speed Aneroid/Altitude Compensator Test HIGH IDLE 1st version rpm : 500 1st version Speed Rack travel in mm : < 7.00 Setting Del.quantity cm3/ : 6 \*\* Speed rpm : 1150 1000 s: (-) Pressure hPa : 1500 Rack travel mm : 14.40...14.50 2nd version Speed rpm : 500 Rack travel in mm : < 7.50 Measurement 1/min: 1150 Speed Del.quantity cm3/: < 50.0 \*\* > 1000 s: (-) 1st pressure hPa : -Rack travel in m: 9.60...10.00 2nd pressure hPa : 480 3rd version Rack travel in m: 10.10...10.20 rpm : 500 Speed Rack travel in mm : 8.20...8.40 3rd pressure hPa : 1000 Rack travel in m: 12.30...12.60 Del.quantity cm3/: > 125.0

1000 s: (-)

# LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 52.0...60.0 \* > 1000 s: (12.0...22.0)

cm3 : 4.50 1000 s: (7.50) Spread >

### Remarks:

: MAN-NR. 3-7224

\* applies to cylinders 2, 3, 4 and 8 \*\* applies for cylinders 1, 5, 6, and 7

# **APPLICATION**

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : NAV Edition : 13.12.96 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 981 Injection pump Pump designation : PES6P120A320LS7322 EP type number : 0 412 726 904 Governor Governor design. : RQV350...1000PA1134 Governer no. : 0 421 815 403 Customer-spec. information Customer : NAVISTAR Engine : DTA-531 1st version kW : 224.0 Rated speed >: 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. \*C> : 38...42 Overflow valve : 2 417 413 076 Inlet press., bar : 2.80 Test nozzle holder assembly> : 1 688 901 101 Openina : 207...210 pressure, bar> Orifice plate diameter mm> : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall>thickness x Length mm> : 6.00x2.00x600

(A) Injection pump setting values > Insp. values in parentheses > Set equal delivery quant. > per values \_\_\_ BEGINNING OF DELIVERY Test pressure, bar: 22...24 G05

Prestroke mm : 2.90...3.00 : (2.85...3.05) Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} > : 0.50 (0.75)$ BASIC SETTING rpm : 1000 1st speed Rack travel in mm : 14.70...14.80 Del.quantity cm3/: 22.6...22.8 100 s: (22.3...23.1) Spread cm3 : 0.8100 s: (1.2) rpm : 325.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.8...2.4 100 s: (1.6...2.6) cm3 : 0.5Spread 100 s: (0.9) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 350 travel mm : 1.80...2.00 2nd speed rpm : 500 : 3.90...4.30 travel mm 3rd speed rpm : 800 : 6.50...6.90 travel mm rpm : 1050 4th speed travel mm : 9.10...9.30 rpm : 1150 5th speed : 10.30...11.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1000 Speed Rack travel in mm : 15.2...17.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 220.0...231.0)

cm3 : 8.00 Spread 1000 : (12.00) > RATED SPEED 1st version Control lever position> degrees: 115...127 Testina: 1st rack travel in: 13.70 rpm : 1040...1070 Speed 2nd rack travel in: 4.00 rpm : 1170...1180 Speed 4th rack travel in: 1250 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 87.5...79.5 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm : 5.0 Testing: Speed rpm : 275 Minimum rack trave: 7.00 rom : 350 Rack travel in mm : 4.90...5.10 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.70...14.80 2nd speed rpm : 650 Rack travel in m: 14.20...14.40 3rd speed rpm : 500 Rack travel in m: 13.40..13.80 Aneroid/Altitude Compensator Test 1st version Settina : 1000 Speed מכיז Pressure hPa : 1200

Rack travel mm : 14.70...14.80

Measurement

1/min: 1000 Speed

1st pressure hPa : -

Rack travel in m: 10.60...11.00

2nd pressure hPa : 350

Rack travel in m: 11.70...11.80

3rd pressure hPa : 855

Rack travel in m: 13.60...14.00

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rom : 650

Del.quantity cm3/: 242.0...248.0 1000 s: (239.0...251.0) >

Spread cm3 : 8.00 1000 s: (12.0) >

Ameroid pressure h: -

: 1000 Speed rpm

Del.quantity cm3/: 126.5...130.5 > 1000 s: (124.5...132.5)

Spread cm3 : -1000 s: (-)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.70

Speed rpm : 1040...1070

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 110.0...150.0 1000 s: (100.0...150.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 5.80...6.20 Del.quantity cm3/: 18.5...24.5 1000 s: (16.5...26.5)

cm3 : 5.00 Spread 1000 s: (9,00) >

Remarks:

: NAVISTAR #1823155C91

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM

Edition : 25.10.96

Replaces

: ISC-4113 Test oil

: 0 403 466 138 Combination no.

Injection pump

Pump designation : PES6MW100/120RS1178

EP type number : 0 413 406 160

Governor

Governor design. : RSV350...1250MW2A332

: 0 420 085 220 Governer no.

Customer-spec. information

Customer : CDC

: 6 CTA Engine

: 204.0 1st version kW

>: 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. \*C> : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly>

Opening

pressure, bar> : 207...210

Orifice plate

diameter mm> : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall>thickness

: 6.00x2.00x600 x Length mm>

(A) Injection pump setting values

> Insp. values in parentheses

> Set equal delivery quant.

> per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55 : (3.40...3.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance  $+ - ^{\circ}> : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 15.5...15.7

100 s: (15.2...16.0) >

cm3 : 0.4Spread

> 100 s: (0.7) >

2nd speed rpm : 350.0 Rack travel in mm : 5.7...5.9

Del.quantity cm3/: 2.0...2.4 100 s: (1.6...2.8) >

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed Aneroid pressure h: 900

: 155.5...157.5 Del.quantity

1000 : (152.5...160.5) >

cm3 : 4.00 Spread 1000 : (7.50)

RATED SPEED

1st version

Control lever

position> degrees: 107...115

Setting point:

rpm : 800 Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.10

Speed rpm : 1305...1315

2nd rack travel in: 4.00

: 1425...1455 Speed COM

3rd rack travel in: 4.00

rpm : 1440...1470 Speed

4th rack travel in: 1650

rpm : 0.30...1.40 Speed

LOW IDLE 1

position degrees: 80...88

Setting point w/out bumper spring

rom : 350 Rack travel in mm : 6.3

Testing:

Speed Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 6.20...6.40

Aneroid/Altitude Compensator Test

hPa : 900 Pressure

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 255

Rack travel in m: 11.60...11.80

3rd pressure hPa : 435

FUEL DELIVERY CHARACTERISTICS

1st version

BREAKAWAY

1st version

Control lever

rpm : 100

1st version

Setting

rpm : 500 Speed

Rack travel mm : 14.10...14.20

Rack travel in m: 13.00...13.40

Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 88.5...92.5 > 1000 s: (86.5...94.5)

1mm rack travel less than

608

full load rack tr: 13.10

rpm : 1305...1315 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) >

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: CDC # 3921123

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

#### BOSCH INJ. PUMP TEST SPECIFICATIONS

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.01.96 Test oil : ISO 4113

Combination No. : 0 402 046 824

Injection pump

Pump designation : PES6P120A320RS3279 EP type number : 0 412 026 758

Governor

Governer design. : RQ275/1050PA999-5 Governer no. : 0 421 801 663

Cust. part No. : CCEP-5112B 66-175

Customer-spec. information

Customer : RVI Motor : MIHE : MIHR 062045 A/3

Power KW : 186.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance \*C

Overflow valve : 2 417 413 078

inlet press. bar : 2.5
Tolerance bar : + 0.1 Inlet press. bar :

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing Phasing Tolerance

: +- 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 10.50 Tolerance mm : + 0.50

# CRT ZERO POSITION

Rack travel in mm : 11.25 Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 700	+ guide sleeve
No.1 minotôtic	travel mm : 5.14 Tolerance mm : + 0.10
Del. quantity cm3/1000 strokes : 158.0	Toterance mm : +- 0.10
CIID 1000 3110/63 . 130.0	Rated speed rpm : 710
Tolerance	+ guide sleeve
cm3/1000 strokes : + 1.0	+ travel mm : 6.00
	+ Tolerance mm : + 0.10
Check tolerance	+
cm3/1000s, : +- 4.0	+ Rated speed rpm : 1380
	+ guide sleeve
Spreed	+ travel mm : 11.50
Tolonomo	† Tolerance mm : +- 0.50
Tolerance : 5.0	Ť
CMS/ 1000 Strokes : 3.0	GUIDE SLEEVE POSITION
Check tolerance	I GOIDE SEEEVE POSITION
cm3/1000s. : 9.0	
	+ control lever
	position degree : 109
	Rated speed rpm : 750
Rated speed rpm : 275	+
	+ Rack travel in mm : 20.00
Rack travel in mm: -4.50	Tolerance mm : + 0.80
Tolerance mm : + 0.10	†
Del. quantity cm3/1000 strokes : 21.0	EUL LOAD DELTUEDY AT EUL LOAD CTOD
cm3/1000 strokes : 21.0 Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : +- 2.0	Rated speed rpm : 700
Check tolerance	+ Aneroid pressure
cm3/1000s. : +- 5.0	+ hPa : 1000
Spreed	Del. quantity
Tolerance	+ cm3/1000 strokes : 158.0
cm3/1000 strokes : 8.0	+ Tolerance
Check tolerance	+ cm3/1000 strokes : +- 1.0
cm3/1000s. : 12.0	+ Check tolerance
	+  cm3/1000s. : + 4.0
(D) SETTING OF THIS COTTON DIND	+ Spreed
(B) SETTING OF INJECTION PUMP	+ Tolerance + cm3/1000 strokes : 5.0
WITH GOVERNOR	+ Check tolerance
	+ cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	+
	+
Rated speed rpm : 1126	
guide sleeve	+ CONTROL LEVER
travel mm : 6.38 Tolerance mm : + 0.10	†
iolerance mm : + U.10	control lever
Detect aread area 700	+ position degree : 274.0
Rated speed rpm : 300 guide sleeve	tolerance degree : + 4.0
travel mm : 2.35	RATED SPEED
Tolerance mm : + 0.10	+ rack travel mm : -1.00
	+ Rated speed rpm : 1138
Rated speed rpm : 1050	+ Tolerance 1/min : + 8
quide sleeve	+
travel mm : 6.00 Tolerance mm : + 0.10	+ rack travel mm : -7.20
Tolerance mm : +- 0.10	+ Rated speed rpm : 1245
Dahad aread was 500	+ Tolerance 1/min : +- 15
Rated speed rpm : 582	+
-44	

rack travel mm Tolerance mm Rated speed rpm	: -10.75 : +- 0.55 : 1350	+ rack trave Tolerance
		+ Start inte
LOUINE		Rated spee
LOW IDLE		Check speed 1/mi
control lever position degree tolerance degree		+ Check + speed 1/mi
Testing:	4.0	FUEL DELIV
Rated speed rpm	: 275	Aneroid pr
rack travel mm Tolerance mm	: -4.50 : → 0.10	hPa Rated spee
rack travel mm	: -9.25	+ Del. quant + cm3/1000 s
Rated speed rpm	: 580	+ Tolerance
Tolerance 1/min	: + 20	+ cm3/1000 s + Check tole
Rated speed rpm	: 200	cm3/1000s.
CRT mm max.	: < -3.00	Aneroid pr
TORQUE CONTROL		Rated spee
TONGOL CONTINCL		+ cm3/1000 s
Rated speed rpm	: 700	+ Tolerance + cm3/1000 s
Rated speed rpm		+ Check tole
Tolerance mm	: ← 0.10	+ sm3/1000s.
ANEROID/ALTITUDE		_
COMPENSATOR TEST		+ STARTING F
SETTING		+ Del. quant + cm3/1000 s
Rated speed rpm	: 500	+ Tolerance + cm3/1000 s
Pressure hPa	: 1000	Check tole cm3/1000s.
Pressure hPa	: -	+
Rated speed rpm rack travel mm	: 500 : -1.20	Ī
Tolerance mm	: <b>←</b> 0.20	LOW IDLE
MEASUREMENT		+
Rated speed rpm	: 500	+ Rated spee + Del. quant + cm3/1000 s
Pressure hPa	: 220	+ Tolerance
rack travel mm	: -0.45	+ cm3/1000 s
Tolerance mm	: <del>+-</del> 0.15	→ Check tole
TOTEL GLICE INII		+ cm3/1000s.

G11

rack travel mm Tolerance mm	: -0.85 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 195
Check speed 1/min Check speed 1/min	: > 80 : < 215
speed 17mm	: < 213
FUEL DELIVERY CHARACTERISTICS	
Aneroid pressure hPa Rated speed rpm	: 1000 : 1050
Del. quantity cm3/1000 strokes	: 154.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000s.	: +- 6.0
Aneroid pressure	: -
Rated speed rpm Del. quantity	500
cm3/1000 strokes	: 114.0
cm3/1000 strokes Check tolerance	: ← 1.0
cm3/1000s.	: + 4.0
STARTING FUEL DELIVERY	
Del. quantity	
cm3/1000 strokes Tolerance	: 155.0
cm3/1000 strokes Check tolerance	: + 10.0
cm3/1000s.	: + 14.6
LOW IDLE	agan da mangang ang mangang ang mangang ang mangang ang mangang ang mangang ang mangang ang mangang ang mangan
Rated speed rpm Del. quantity	: 275
cm3/1000 strokes Tolerance	: 21.0
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed	: <del>←</del> 5.0

Tolerance : 8.0 Check tolerance cm3/1000s. : 12.0

End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 03.04.96 Edition : ISO 4113 Test oil

Combination No. : 0 402 640 804

Injection pump

Pump designation : PE12P12OA320LS7807

EP type number : 0 412 620 806

Governor

Governer design. : RQV350...1050PA842

Governer no. : 0 421 813 587

Cust. part No. :

Customer-spec. information Customer : MB-NFZ : OM 444 A Motor : 390.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +~ 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 160 Tolerance L/h : +- 10.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar : + 1.5 Tolerance bar

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 12-1-5-9-8

: - 4-11-10-2 : - 7

: 0-45-60-105-120 Phasing

: -180-225-240-285

: -345

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm: 13.60 Tolerance mm : + 0.10

Del. quantity	+ Tolerance mm : +- 0.20
cm3/1000 strokes : 200.0	†
Tolerance	+ GUIDE SLEEVE POSITION
cm3/1000 strokes : +- 1.0	†
	†
Check tolerance	+ control lever
cm3/1000s. : +- 4.0	+ position degree : - 1
	+ Rated speed rpm : 1150
Spreed	Park Annual in an a 44 50
Talanama	+ Rack travel in mm : 16.50 + Tolerance mm : + 1.30
Tolerance cm3/1000 strokes : 5.0	Tolerance mm : +- 1.30
cm3/1000 strokes : 5.0	<b>T</b>
Check tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000s. : 9.0	T FOLE LOAD DELIVERY AT FOLE COAD STOP
CMS/ (UUUS: 7.0	Rated speed rpm : 600
	+ Rated speed rpm : 600 + Aneroid pressure
	hPa : 660
Rated speed rpm : 350	Del. quantity
varen sheen this ! 330	- cm3/1000 strokes : 200.0
Rack travel in mm: 5.55	Tolerance
Tolerance mm : + 0.10	cm3/1000 strokes : +- 1.0
Del. quantity	Check tolerance
cm3/1000 strokes : 19.0	- cm3/1000s. : +- 4.0
Tolerance	Spreed
cm3/1000 strokes : +- 3.0	+ Tolerance
Check tolerance	- cm3/1000 strokes : 5.0
cm3/1000s. : +- 4.5	Check to erance
Spreed	- cm3/1000s. : 9.0
Tolerance	
cm3/1000 strokes : 8.0	1
Check tolerance	
cm3/1000s. : 12.0	+ CONTROL LEVER
	+
	+ control lever
(B) SETTING OF INJECTION PUMP	+ position degree : 63.0
WITH GOVERNOR	+ tolerance degree : +- 4.0
	+
	+ RATED SPEED
GUIDE SLEEVE TRAVEL	+ rack travel mm : 11.00
2.1	Rated speed rpm : 1095
Rated speed rpm : 1200	† Tolerance 1/min : + 5
guide steeve	T most denoted as / 00
travel mm : 8.50	rack travel mm : 4.00
Tolerance mm : +- 0.20	+ Rated speed rpm : 1170
Dated aread non-	Tolerance 1/min : + 15
Rated speed rpm : 350	T mark travel 0.50
guide steeve travel mm : 2.00	+ rack travel mm : 0.50 + Tolerance mm : + 0.50
Tolerance mm : +- 0.10	Rated speed rpm : 1300
Rated speed rpm : 700	I
	I
guide sleeve travel mm : 4.20	I
Tolerance mm : +- 0.20	LOW IDLE
ioterance min : +- U.Co	I LOW INCE
Rated speed rpm : 1100	1
guide steeve	I control lever
travel mm : 7.00	position degree : 14.0
CLOYCE HAIL . 1.00	Position addition : 14.0

tolerance degree : +- 4.0	+ Rated speed rpm : > 100 + Rated speed rpm : < 270
Testing:	+
Rated speed rpm : 350 rack travel mm : 5.55 Tolerance mm : + 0.10	+ Check + speed 1/min :> 80 + Check + speed 1/min :< 290
Rated speed rpm : 250	
CRT mm min. : > 7.10	+ FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 500	Aneroid pressure  hPa : 1100 Rated speed rpm : 1050
TORQUE CONTROL	Del. quantity cm3/1000 strokes : 172.0 Tolerance
Rated speed rpm : 600 rack travel rmm : 13.60	cm3/1000 strokes : + 2.0 Check tolerance
Tolerance mm : + 0.10	- cm3/1000s. : +- 5.0 - spreed
Rated speed rpm : 1050 rack travel mm : 12.10 Tolerance mm : + 0.10	Tolerance cm3/1000 strokes : 8.0 Check tolerance
Rated speed rpm : 975	cm3/1000s. : 12.0
rack travel mm : 12.70	Aneroid pressure
	+ hPa : 1100 + Rated speed rpm : 750
Rated speed rpm : 875 rack travel mm : 13.30	<pre>bel. quantity cm3/1000 strokes : 206.0</pre>
Tolerance mm : ← 0.10	+ Tolerance - cm3/1000 strokes : + 2.0
Rated speed rpm : 750 rack travel mm : 13.60 Tolerance mm : + 0.10	Check tolerance cm3/1000s. : +- 5.0 Spreed
	Tolerance cm3/1000 strokes : 8.0
ANEROID/ALTITUDE COMPENSATOR TEST	Check tolerance cm3/1000s. : 12.0
	Aneroid pressure
2-stage LDA setting	hPa : 1100 Rated speed rpm : 1050 Del. quantity
Rated speed rpm : 600 Pressure hPa : 660	cm3/1000 strokes : 152.0 Tolerance
MEASUREMENT	cm3/1000 strokes : +- 2.0 Check tolerance
Pressure hPa : 350 rack travel mm : -2.10 Tolerance mm : +- 0.05	cm3/1000s. : +- 5.0 Spreed Tolerance
	+ cm3/1000 strokes : 8.0 + Check tolerance
Pressure hPa : 500 rack travel mm : −0.60 Tolerance mm : + 0.10	Check tolerance : 12.0  Aneroid pressure
ioterance mm : - U.IU	} hPa : −
Start interlock	Rated speed rpm : 500

Del. quantity			
cm3/1000 strokes	:		137.0
Tolerance			
cm3/1000 strokes	;	+-	1.0
Check tolerance			
cm3/1000s.		+-	4.0
Spreed			
Tolerance			
cm3/1000 strokes	:		8.0
Check tolerance			
cm3/1000s.	:		12.0

## STARTING FUEL DELIVERY

Rated speed rpm	:	100
Pel. quantity cm3/1000 strokes	:	230.0
Tolerance cm3/1000 strokes	: +	- 10.0
Check tolerance cm3/1000s.	: +	- 14.0

# LOW IDLE

Rated speed rpm	:	350
Del. quantity		
cm3/1000 strokes	:	19.0
Tolerance		
cm3/1000 strokes	: +	- 3.0
Check tolerance		
cm3/1000s.	: +	- 4.5
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 05.03.96 Edition Test oil : ISO 4113

combination No. : 0 402 646 760

Injection pump

Pump designation : PE6P120A320LS7834 EP type number : 0 412 626 853

Governor

Governer design. : RQ300/1050PA1030-23

Governer no. : 0 421 801 769

Cust. part No. : 0260743502

Customer-spec. information Customer : MB-NFZ : 0M461 LA Motor : 230.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 : +- 0.1 Tolerance bar

Tolerance l/h: + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : **←** 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 1-

Phasing : 0-60-120-180-240

: 0-360

Tolerance : +- 0.30

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm: 14.80 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +- 1.0

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	+ Tolerance mm : +- 0.10
Check tolerance cm3/1000s. : +- 4.0	Rated speed rpm : 1270 guide sleeve
Spreed	+ travel mm : 11.50 + Tolerance mm : + 0.59
Tolerance	Toterance mm : + 0.55
cm3/1000 strokes : 5.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : 9.0	+
	+ control lever
	+ position degree : 109 + Rated speed rpm : 600
Rated speed rpm : 300	T Rated speed rpm : 000
	+ Rack travel in mm : 20.00
Rack travel in mm : 5.20	+ Tolerance mm : + 0.80
Tolerance mm : + 0.10 Del. quantity	†
cm3/1000 strokes : 13.0 Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : +- 3.0	Rated speed rpm : 550
Check tolerance	+ Aneroid pressure
cm3/1000s. : + 6.0	+ hPa : 1000
Spreed Tolerance	+ Del. quantity + cm3/1000 strokes : 230.0
cm3/1000 strokes : 6.0	+ Tolerance
Check tolerance	+ cm3/1000 strokes : +- 1.0
cm3/1000s. : 10.0	+ Check tolerance + cm3/1000s. : +- 4.0
	+ Spreed : - 4.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : 5.0
	+ Check tolerance + cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	1
Rated speed rpm : 1104	
guide sleeve	+ CONTROL LEVER
travel mm : 6.51 Tolerance mm : + 0.10	+ control lever
Tolerance mm : + 0.10	position degree ; 100.0
Rated speed rpm : 300	tolerance degree : + 4.0
guide sleeve	1
4.70	
travel mm : 1.78	RATED SPEED
travel mm : 1.78 Tolerance mm : + 0.10	+ rack travel mm : 13.80
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8 rack travel mm : 4.00 Rated speed rpm : 1195
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 421 guide sleeve	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15  rack travel mm : 0.75
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 421 guide sleeve travel mm : 4.00	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15  rack travel mm : 0.75 Tolerance mm : + 0.75
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 421 guide sleeve	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15  rack travel mm : 0.75
Tolerance mm : + 0.10  Rated speed rpm : 1050 guide sleeve travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 421 guide sleeve travel mm : 4.00	rack travel mm : 13.80 Rated speed rpm : 1098 Tolerance 1/min : + 8  rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : + 15  rack travel mm : 0.75 Tolerance mm : + 0.75

LOW IDLE	
control lever position degree tolerance degree	: 74.0 : +- 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.20 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 405 : + 20
Rated speed rpm	: 200
CRT mm min.	: > 7.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 550 : 14.80 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 14.80 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 700 : 14.80 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 400 : 1000 : 14.80 : + 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 400 : 10.50 : + 0.15
MEASUREMENT	
Rated speed rpm	: 400
Pressure hPa	: 400
-44	

rack travel mm Tolerance mm	: 12.90 : + 0.20
Pressure hPa rack travel mm Toleranse mm	: 600 : 14.15 : +- 0.20
Start interlock	
Rated speed rpm Rated speed rom	: > 100 : < 220
Check speed 1/min Check	: > 80
speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 1000 : 1050 : 229.0 : ← 3.0 : ← 6.0
Tolerance cm3/1000 strokes Check tolerance cm3/1000S.	: 8.0 : 12.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: - : 500 : 129.0 : ← 1.0 : ← 4.0
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 8.0 : 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Del. quantity	. 240.0

Del. quantity
cm3/1000 strokes : 210.0
Tolerance
cm3/1000 strokes : +- 15.0

Check tolerance		
cm3/1000s.	: +-	19.0

# LOW IDLE

Rated speed rpm	: 300	
Del. quantity cm3/1000 strokes	: 13.0	
Tolerance cm3/1000 strokes	: +- 3.0	
Check tolerance cm3/1000s.	: <del>←</del> 6.0	
Spreed Tolerance		
cm3/1000 strokes Check tolerance	: 6.0	
cm3/1000s.	: 10.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04.06.96 Test oil : ISO 4113

Combination No. : 0 402 776 829

Injection pump

Pump designation : PES6P120A720RS7399 EP type number : 0 412 726 951

Governor

Governer design. : RSV475...1050P0A547

: 11

Governer ac. : 0 421 833 510

Cust. part No. : RE65509

Customer-spec. information Customer : DEERE Motor : 6101 A

Motor : 6101 AT012 Power KW : 210.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

rmasing : 0-60-120-180-240
Tolerance : ← 1 ₹0

Check

: +- 0.75 tolerance \*NW

Start of delivery mark

\*NW after s.o.d. : 7.00 Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30 Tolerance mm : + 0.05

Del. quantity + cm3/1000 strokes : 243.5 +	Aneroid pressure hPa : 2300
Tolerance	Del. quantity cm3/1000 strokes : 243.5
cm3/1000 strokes : +- 1.0	Tolerance cm3/1000 strokes : +- 1.0
Check tolerance	Check tolerance
cm3/1000s. : +- 4.0	cm3/1000s. : +- 4.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : 5.0	Check tolerance cm3/1000s. : 9.0
	tm3/10005. : 9.0
Check tolerance + cm3/1000S. : 9.0 +	
<u> </u>	CONTROL LEVER
Rated speed rpm : 475	control lever position degree : 95.0
+	tolerance degree : + 4.0
Rack travel in mm: 5.80 1 Tolerance mm: + 0.10	RATED SPEED
Del. quantity + cm3/1000 strokes : 28.0 +	rack travel mm : 12.30 Rated speed rpm : 1125
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : + 3.0 + Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 5.0 +	Rated speed rpm : 1195
Spreed + Tolerance +	Tolerance 1/min : + 5
cm3/1000 strokes : 8.0 + Check tolerance +	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : 12.0	Rated speed rpm : 1300
‡	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1195
WITH GOVERNOR	
<del></del> ‡	
GUIDE SLEEVE POSITION	LOW IDLE
control lever	control lever
position degree : -3	position degree : 75.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	Setting point w/out bumper spring
governor spring +	Rated speed rpm : 475 rack travel mm : 5.30
pre-tension +	Tolerance mm : + 0.10
click setting x : 4.00	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 475
Rated speed rpm : 1050	rack travel mm : 5.80 Tolerance mm : + 0.10

Rated speed rom 100 CRT mm min. : > 19.00 TORQUE CONTROL Rated speed rpm 1050 13,30 rack travel mm Tolerance mm : +- 0.05 Rated speed rpm 750 rack travel mm 14,90 : **←** 0.20 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm 500 Pressure hPa 2300 Pressure hPa 500 Rated speed rpm 11.00 rack travel mm Tolerance mm : + - 0.10**MEASUREMENT** 500 Rated speed rpm : Pressure hPa 1570 rack travel mm 14.00 Tolerance mm : + 0.20 Pressure hPa 750 12.00 rack travel mm Tolerance mm : +- 0.05 Start interlock FUEL DELIVERY CHARACTERISTICS Aneroid pressure 2300 hPa Rated speed rpm 750 : Del. quantity cm3/1000 strokes : 316.5 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Aneroid pressure hPa

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 176.5
Tolerance
cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s : + 25.0

## LOW IDLE

Rated speed rpm 475 Del. quantity cm3/1000 strokes : 28.0 Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance cm3/1000s. 5.0 : +-Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.96 Test oil : ISO 4113

Combination No. : 0 400 876 404

Injection pump

Pump designation : PES6A95D410RS2835 EP type number : 0 410 896 896

Governor

Governer design. : RSV650...1050A8C2263

: 1

Governer no. : 0 420 232 583

Cust. part No. : 87 800 648

Customer-spec. information

Customer : FNH-GEOTECH

Motor : 7.5 L Power KW : 149.0

#### TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm: 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : ← 1.0

Prestroke mm : 2.60
Tolerance mm : + 0.05
Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.50 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 151.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

\_\_\_\_\_

Check tolerance + cm3/1000s. : 8.0	
	CONTROL LEVER
Į	control lever
Rated speed rpm : 650	position degree : 83.0 tolerance degree : + 4.0
Rack travel in mm: 5.40	· ·
Tolerance mm : + 0.10 + Del. quantity +	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 23.5	ASSEMBLY GOVERNOR SETTING
Tolerance	Rated speed rpm : 1078
cm3/1000 strokes : + 2.0 +	rack travel mm : 12.10
Check tolerance + 4.5	Rated speed rpm : 1118
Spreed	Tolerance 1/min : +- 5
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 5.5	
Check tolerance + cm3/1000s. : 9.0	rack travel mm : 0.85 Tolerance mm : +- 0.55
. 2.0	Rated speed rpm : 1225
+	· · · · · · · · · · · · · · · · · · ·
(B) SETTING OF INJECTION PUMP	Data dan and avenue 4070
WITH GOVERNOR ±	Rated speed rpm : 1079 rack travel mm : 12.10
1	THE TENTO THE TENTO
	Rated speed rpm : 1119
GUIDE SLEEVE POSITION	Tolerance 1/min : +- 5
I	rack travel mm : 4.00
control lever	rack travel mm : 0.85
position degree : - 3	Tolerance mm : +- 0.55
Rated speed rpm : 800	Rated speed rpm : 1225
Rack travel in mm : 0.50	
Tolerance mm : + 0.20	Rated speed rpm : 1080
+	rack travel mm : 12.10
governor spring + pre-tension +	Rated speed rpm : 1120
click setting x : 3.00	Tolerance 1/min : +- 5
+	rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm . 0.85
TOLL LOAD DELIVERY AT FOLE LOAD STOP	rack travel mm : 0.85 Tolerance mm : +- 0.55
Rated speed rpm : 750	Rated speed rpm : 1225
Aneroid pressure	
hPa : 1200 +	Rated speed rpm : 1081
cm3/1000 strokes : 151.5	rack travel mm : 12.10
Tolerance	
cm3/1000 strokes : + 1.0	Rated speed rpm : 1121 Tolerance 1/min : + 5
Check tolerance cm3/1000s. : +- 3.0	rack travel mm : 4.00
Spreed +	
Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 3.5 + Check tolerance	Tolerance mm : + 0.55 Rated speed rpm : 1225
cm3/1000s. : 8.0	nated speed (pill : 122)
+	
+	Rated speed rpm : 1082

40.40	
rack travel mm : 12.10 -	
4400	Rated speed rpm : 1025
Rated speed rpm : 1122 -	rack travel mm : 13.30
Tolerance 1/min : +- 5 -	rack travel mm : 13.30 Tolerance mm : + 0.10
rack travel mm : 4.00	
	Rated speed rpm : 975 rack travel mm : 13.65 Tolerance mm : + 0.15
rack travel mm : 0.85	rack travel mm : 13.65
Tolerance mm : + 0.55	Tolerance mm · + 0.15
Rated speed rpm : 1225 -	
nated speed (bill . TEE)	
	ANEROID/ALTITUDE
Dated aread one . 1007	
Rated speed rpm : 1083 - rack travel mm : 12.10 -	COMPENSATOR TEST
rack travel mm : 12.10	
4407	
Rated speed rpm : 1123 -	SETTING
Tolerance 1/min : + 5	
rack travel mm : 4.00 -	Rated speed rpm : 500 Pressure hPa : 1200
	- Pressure hPa : 1200
rack travel mm : 0.85	rack travel mm : 14.50
rack travel mm : 0.85 - Tolerance mm : + 0.55 -	Tolerance mm : +- 0.10
Rated speed rpm : 1225 -	
	Pressure hPa : - Rated speed rpm : 500 rack travel mm : 8.90 Tolerance mm : + 0.10
	Rated speed rom : 500
LOW IDLE	rack travel mm · 8 90
	Tolerance mm · + 0.10
	roterance min . To 0.10
control lever	MEACHDEMENT
	MEASUREMENT
position degree : 71.0	500
tolerance degree : +- 4.0	- Rated speed rpm : 500
Setting point w/out bumper spring	Pressure hPa : 325 rack travel mm : 10.70
	rack travel mm : 10.70 Tolerance mm : +- 0.20
Rated speed rpm : 650 -	Tolerance mm : +- 0.20
rack travel mm : 4.90 - Tolerance mm : +- 0.10 -	
Tolerance mm : + 0.10	Pressure hPa : 550
-	rack travel mm : 13.55
Testing:	Pressure hPa : 550 rack travel mm : 13.55 Tolerance mm : + 0.05
-	
Rated speed rpm : 650	Start interlock
rack travel mm : 5.40	-
Tolerance mm : + 0.10	
roser grice min	
rack travel mm : 2.00	FUEL DELIVERY CHARACTERISTICS
	LOFF REFIAEVE GUNDAGIENTOITOS
	Anapaid processes
Tolerance 1/min : +- 30 -	Aneroid pressure
Datad and an and an an an analysis and	hPa : -
Rated speed rpm : 100	Rated speed rpm : 500
4 4 4	Del. quantity
CRT mm min. : > 19.50 -	- cm3/1000 strokes : 77.0
	- Tolerance
	cm3/1000 strokes : +- 2.0
TORQUE CONTROL	- Check tolerance
	- cm3/1000s. : + 4.5
Rated speed rpm : 750	
rack travel mm : 14.50	
Tolerance mm : + 0.10	
	STARTING FUEL DELIVERY
Rated speed rpm : 1025	OTHINITIES I OFF REFIACINE
rack travel mm : 12.80	Rated speed rpm : 100
	Rated speed rpm : 100
Tolerance mm : +- 0.10 -	Γ

Del. quantity cm3/1000 strokes	:	200.0
Tolerance cm3/1000 strokes Check tolerance	: +-	10.0

Check tolerance : + 13.0

## LOW IDLE

Rated speed rpm : 650
Del. quantity
cm3/1000 strokes : 23.5
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000s. : 9.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 18,10,96 Test oil : ISO 4113

Combination No. : 0 402 776 803

Injection pump

Pump designation : PES6P120A720LS7107

EP type number : 0 412 726 805

Governor

Governer design. : RSV35@...750P0A520

Governer no. : 0 421 833 262

Cust. part No. :

Customer-spec. information Customer : MB-NFZ Motor : OM447 A Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 110 Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter: 1.5

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : + 0.50

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240 Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 14.85

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 225.0

Tolerance +	- Tolerance
cm3/1000  strokes : + 1.0	- cm3/1000 strokes : +- 1.0
	- Check tolerance
Check tolerance	- cm3/1000s. : + 4.0
cm3/1000s. : +- 4.0 +	- Spreed
	- Tolerance
Spreed	- cm3/1000 strokes : 5.0
	- Check tolerance
Tolerance	- cm3/1000s. : 9.0
	· (III)/10003. : 9.0
cm3/1000 strokes : 5.0	-
	•
Check tolerance	
cm3/1000s. : 9.0	- CONTROL LEVER
1	
†	- control lever
<b>†</b>	- position degree : 81.0
Rated speed rpm : 350	- tolerance degree : +- 4.0
4	
Rack travel in mm: 5.60	_
Tolerance mm : +- 0.10	- ASSEMBLY GOVERNOR SETTING
	- MOSCIADES ACNEUNOR SELLTING
Del. quantity +	-
cm3/1000 strokes : 17.0	- Rated speed rpm : 750
Tolerance +	- rack travel mm : 13.80
cm3/1000 strokes : + 3.0	•
Check tolerance	- Rated speed rpm : 793
cm3/1000s. : + 6.0 +	- Tolerance 1/min : +- 4
Spreed	- rack travel mm : 4.00
Tolerance +	
cm3/1000 strokes : 8.0	- rack travel mm : 0.85
Check tolerance	- Tolerance mm : + 0.55
cm3/1000s. : 12.0	- Rated speed rpm : 850
†	-
+	-
(B) SETTING OF INJECTION PUMP	- Rated speed rpm : 751
WITH GOVERNOR	- rack travel mm : 13.80
WITH GOVERNOR	-
Ţ	70/
†	- Rated speed rpm : 794
<del></del>	- Tolerance 1/min : +- 4
GUIDE SLEEVE POSITION +	- rack travel mm : 4.00
1	•
1	- rack travel mm : 0.85
T	
control lever	- Tolerance mm : + 0.55
position degree : -3	- Rated speed rpm : 850
Rated speed rpm : 800	-
4	-
Rack travel in mm: 0.65	- Rated speed rpm : 752
Tolerance mm : + 0.35	- rack travel mm : 13.80
Total alice insi	- I GUN LI GYEL IINII . ID.OU
governor spring +	- Rated speed rpm : 795
pre-tension +	- Tolerance 1/min : + 4
click setting x : 2.75	- rack travel mm : 4.00
	nack that all the all
	- rack travel mm : 0.85
FULL LOAD DELIVERY AT FULL LOAD STOP	- Tolerance mm : +- 0.55
+	- Rated speed rpm : 850
Rated speed rpm : 700	· · · · · · · · · · · · · · · · · · ·
Aneroid pressure	_
AIRIUIU DIEGGUIE T	
	Dated cheed non . 757
hPa : - +	- Rated speed rpm : 753
hPa : - + Del. quantity +	- Rated speed rpm : 753 - rack travel mm : 13.80
hPa : - +	

H01

Rated speed rpm Tolerance 1/min rack travel mm	: : +-	796 4 4.00	
rack travel mm Tolerance mm Rated speed rpm	: +-	0.85 0.55 850	
Rated speed rpm rack travel mm		754 13.80	
Rated speed rpm Tolerance 1/min rack travel mm		797 4 4.00	
rack travel mm Tolerance mm Rated speed rpm	: +-	0.85 0.55 850	
Rated speed rpm rack travel mm		755 13.80	
Rated speed rpm Tolerance 1/min rack travel mm	: +-	798 4 4.00	
rack travel mm Tolerance mm Rated speed rpm	: +-	0.85 0.55 850	
LOW IDLE			
control lever position degree tolerance degree	: +-	67.0 4.0	
Testing:			
Rated speed rpm rack travel mm Tolerance mm	: +-	350 5.60 0.10	
Rated speed rpm	:	100	
CRT mm min.	; >	19.50	
SET IDLE AUXILIAR	Y SPR	ING	
Rated speed rpm	:	100 2.00	
rack travel mm	•	2.00	
TORQUE CONTROL	• 		

H02

Tolerance mm :  $\leftarrow$  0.05 Start interlock STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 240.0 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000s. : +- 14.0 LOW IDLE Rated speed rpm : 350 Del. quantity cm3/1000 strokes : 17.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance : 12.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04.12.96 Test oil : ISO 4113

Combination No. : 0 402 776 830

Injection pump

Pump designation : PES6P120A720RS7404 EP type number : 0 412 726 953

Gavernor

Governer design. : RSV400...1050POA547

: 12

: 0 421 833 511 Governer no.

Cust. part No. : RE500079

Customer-spec. information

Customer : DEERE 6101 A : 6101 AF070 Power KW : 224.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05 Check tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Tolerance : 0-60-120-180-240

Check

tolerance \*NW : ← 0.75

Start of delivery mark

\*NW after s.o.d. : 7.50 Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 14.00 Difference \* CS : 2.50

BASIC SETTING

Rated speed rpm : 1050	governor spring pre-tension click setting x : 3.50
Rack travel in mm: 12.15 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 214.0	Rated speed rpm : 1050 Aneroid pressure hPa : 2400
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 214.0 Tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Spreed	Spreed Tolerance cm3/1000 strokes : 6.0
cm3/1000 strokes : 6.0  Check tolerance	Check tolerance cm3/1000s. 9.0
cm3/1000s. : 9.0	CONTROL LEVER
Rated speed rpm : 400	control lever position degree : 95.0
Rack travel in mm: 5.50 Tolerance mm: + 0.10 Del. quantity	tolerance degree : + 4.0  RATED SPEED
cm3/1000 strokes : 28.0 Tolerance cm3/1000 strokes : + 3.0	rack travel mm : 11.10 Rated speed rpm : 1115 Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : + 5.0 Spreed	rack travel mm : 4.00 Rated speed rpm : 1175
Tolerance cm3/1000 strokes : 8.0 Check tolerance	Tolerance 1/min : + 5 reck travel mm : 0.85
cm3/1000s. : 12.0	Tolerance mm : +- 0.55 Rated speed rpm : 1230
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1180
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 73.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Setting point w/out bumper spring
‡	Rated speed rpm : 400 rack travel mm : 5.00

Tolerance mm	: <b>←</b> 0.10	+	Del. quantity	
_		+	cm3/1000 strokes	: 250.0
Testing:		+	Tolerance	
0-4-1	100	†	cm3/1000 strokes	: +- 3.0
Rated speed rpm	÷ 400	†	Check tolerance	
Rated speed rpm rack travel mm Tolerance mm	; 2,3U	†	cm3/1000s.	: +- 0.0
IOCET GITTE THE	, 0.10	I	Aneroid pressure	
Rated speed rpm	: 100	I	hPa	• -
The state of the s	, , , , ,	1	Rated speed rpm	: 500
CRT mm min.	: > 19.00	+	Del. quantity cm3/1000 strokes	
		+	cm3/1000 strokes	: 121.0
	Desiration and the second seco		Tolerance	
TORQUE CONTROL		†	cm3/1000 strokes	
Datad aread are	. 1050	†	Check tolerance	
Rated speed rpm	: 1050 : 12.15	• 1	cm3/1000s.	: +- 4.0
rack travel mm Tolerance mm	: + 0.05	I		
		4		
Rated speed rpm	: 700	1	STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm	: 13.20	+		
Tolerance mm	: <b>←</b> 0.10	+	Rated speed rpm	: 100
		+	rack travel mm	: 20.50
11177474 / 11 777 / 1		<del></del> †	Tolerance mm	: <del>→</del> 0.50
ANEROID/ALTITUDE		†	Del. quantity	405.0
COMPENSATOR TEST		1	cm3/1000 strokes Tolerance	: 102.0
		I	cm3/1000 strokes	· +- 20 0
SETTING		$\mathbf{I}$	Check tolerance	20.0
V 1 1 2110		1	cm3/1000s.	: +- 25.0
Rated speed rpm	: 500	+		
Pressure hPa	: 2400	+		
		+		
Pressure hPa Rated speed rpm	500	†	LOWERD	
rack travel mm	: 500	1	LOW IDLE	
Tolerance mm	: + 0.10	I	Rated speed rpm	: 400
TOTOL GILLOC HILL		1	Del. quantity	. 400
MEASUREMENT		1	cm3/1000 strokes	: 28.0
		<u>.</u>	Tolerance	
Rated speed rpm	: 500	+	cm3/1000 strokes	: <b>←</b> 3.0
	4755	+	Check tolerance	
Pressure hPa	: 1580	t	cm3/1000s.	: <del>+-</del> 5.0
rack travel mm	: 12.30 : + 0.05	†	Spreed	
Tolerance mm	: די ט.טס	Ī	Tolerance cm3/1000 strokes	: 8.0
Pressure hPa	: 850	I	Check tolerance	. 0.0
rack travel mm	10.40	1		: 12.0
Tolerance mm	: + 0.20	+		. = . •
		+		
Start interlock		+		
		+		
		†	End of tech accet	fination about
FUEL DELIVERY CHA	RACTERISTICS	†	End of test speci	TICATION SNEET
Aneroid pressure		I		
hPa	: 2400	I		
Rated speed rpm		1		
seed opered i pill		1		
		-		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 02.12.96 Test oil : ISO 4113

Combination No. : 0 402 776 831

Injection pump

Pump designation : PES6P12DA72ORS7404

EP type number : 0 412 726 953

Governor

Governer design. : RSV400...1050P0A547

: 13

Governer no. : 0 421 833 512

Cust. part No. : RE500081

Customer-spec. information

Customer : DEERE Motor : 6101 A

: 6101 AF010 Power KW

: 242.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

H06

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm:  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery mark

\*NW after s.o.d. : 8.00 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

: 14.00 travel Difference \* CS : 2.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 13.15 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1050
Del. quantity cm3/1000 strokes : 231.0	Aneroid pressure hPa : 2600 Del. quantity
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : 231.0 Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : - 4.0	Check tolerance cm3/1000s. : ← 4.0
Spreed	Spreed Tolerance cm3/1000 strokes : 6.0
Tolerance cm3/1000 strokes : 6.0	Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	
	CONTROL LEVER
Rated speed rpm : 400	<pre>control lever position degree : 98.0 tolerance degree : +- 4.0</pre>
Rack travel in mm: 6.00 Tolerance mm: + 0.10 Del. quantity	RATED SPEED rack travel mm : 12.10
<pre>cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : + 3.0</pre>	Rated speed rpm : 1110 Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1185 Tolerance 1/min : +- 5
cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	rack travel mm : 0.85 Tolerance mm : ← 0.55 Rated speed rpm : 1270
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1195
GUIDE SLEEVE POSITION +	LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	<pre>control lever position degree : 76.0 tolerance degree : +- 4.0</pre>
Rack travel in man: 0.50 Tolerance mmn: + 0.20	Setting point w/out bumper spring
governor spring + pre-tension +	Rated speed rpm : 400 rack travel mm : 5.50 Tolerance mm : +- 0.10
click setting x : 4.25	Testing:

400 Rated speed rpm 6.00 rack travel mm Tolerance mm : + 0.10Rated speed rpm 100 CRT me min. : > 19.00 TORQUE CONTROL Rated speed rpm 1050 rack travel mm 13.15 Tolerance mm : + 0.05 700 Rated speed rpm rack travel mm 13.95 : Tolerance mm : +- 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm 500 Pressure hPa 2600 Pressure hPa 500 Rated speed rpm : rack travel mm 9.80 Tolerance mm : + 0.20MEASUREMENT Rated speed rpm 500 Pressure hPa 1750 : 12.90 rack travel mm Tolerance mm : **←** 0.05 925 Pressure hPa 10.80 rack travel mm Tolerance mm : +- 0.20 Start interlock

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 2600 Rated speed rpm : 700 Del. quantity

cm3/1000 strokes : 267.5

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 6.0

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity

cm3/1000 strokes : 118.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 105.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s : + 25.0

#### LOW IDLE

Rated speed rpm : 400 Del. quantity cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +-5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.97 Test oil : ISO 4113

Combination No. : 0 400 876 295

Injection pump

Pump designation : PES6A90D410RS2596 EP type number : 0 410 896 073

Governor

Governer design. : RSV750...1250A1C618

: 1L

Governer no. : 0 420 232 513

Cust. part No. :

Customer—spec. information
Customer : MB-NFZ
Motor : 0M352
Power KW : 119.0

#### TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H09

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

#### BASIC SETTING

Del. quantity

cm3/1000 strukes : 78.0

Tolerance cm3/1000 strokes : +- 0.5

Check tolerance cm3/1000s. : + 2.5

cm3/1000s. : +- 2

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance cm3/1000s. : 4.5

Rated speed rpm : 750

Rack travel in mm: 7.10
Tolerance mm: + 0.10
Del. quantity

cm3/1000 strokes : 12.0

Tolerance cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 2.0	rack travel mm Tolerance mm Rated speed rpm	
Check tolerance cm3/1000s. : 4.0	Rated speed rpm rack travel mm	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm Tolerance 1/min rack travel mm	: +- 6
GUIDE SLEEVE POSITION	rack travel mm Tolerance mm Rated speed rpm	: 1.00 : +- 0.70 : 1445
control lever position degree : - 3 Rated speed rpm : 800	Rated speed rpm rack travel mm	
Rack travel in mm: 0.65 Tolerance mm: + 0.35	Rated speed rpm Tolerance 1/min rack travel mm	: +- 6
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1230	rack travel mm Tolerance mm Rated speed rpm	: + 1.00 : + 0.70 : 1445
Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 78.0	Rated speed rpm rack travel mm	
Tolerance cm3/1000 strokes : + 0.5 Check tolerance	Rated speed rpm Tolerance 1/min rack travel mm	: +- 6
Spreed Tolerance	rack travel mm Tolerance mm Rated speed rpm	: 1.00 : + 0.70 : 1445
cm3/1000 strokes : 3.0 Check tolerance cm3/1000s. : 4.5	Rated speed rpm rack travel mm	: 1254 : 12.20
CONTROL LEVER	Rated speed rpm Tolerance 1/min rack travel mm	: +- 6
position degree : 109.0 tolerance degree : + 4.0	rack travel mm Tolerance mm Rated speed rpm	: +- 0.70
ASSEMBLY GOVERNOR SETTING	+ kateu speeu rpiii	. (445)
Rated speed rpm : 1250 rack travel mm : 12.20	Rated speed rpm rack travel mm	
Rated speed rpm : 1280 Tolerance 1/min : +- 6 rack travel mm : 4.00	Rated speed rpm Tolerance 1/min rack travel mm	: +- 6

rack travel mm : 1.00 Tolerance mm : + 0.70 Rated speed rpm : 1445

#### LOW IDLE

control lever

position degree : 86.0 tolerance degree : + 4.0

## Testing:

Rated speed rpm : 750 rack travel mm : 7.10 Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 780
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

Start interlock

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 16.80 Tolerance mm : + 0.20 Del. quantity

cm3/1000 strokes : 85.0

Tolerance

cm3/1000 strokes : +- 5.0

Check tolerance

cm3/1000s. : +- 8.0

#### LOW IDLE

Rated speed rpm : 750

Del. quantity cm3/1000 strokes : 12.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. : + 5.0

Spreed Tolerance

cm3/1000 strokes : 2.0

Check tolerance

cm3/1000s. : 4.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 04.01.97 Edition Test oil : ISO 4113

Combination No. : 0 400 876 311

Injection pump

Pump designation : PES6A90D410RS2569 EP type number : 0 410 896 071

Governor

Governer design. : RSV350...1250A0C1130

: -1L

: 0 420 232 427 Governer no.

Cust. part No. :

Customer-spec. information Customer : MB-NFZ Motor : OM 352 : 92.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet

temp. °C 40 Tolerance \*C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar : +- 1.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.55

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 57.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  0.5

Check tolerance

cm3/1000s. : **←** 2.5

Spreed

Tolerance

cm3/1000 strokes : 3.0

Check tolerance

cm3/1000s. 4.5

Rated speed rpm : 350

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Del. quantity cm3/1000 strokes : 11.0 Tolerance cm3/1000 strokes : + 1.0 Spreed Tolerance cm3/1000 strokes : 2.5 Check tolerance cm3/1000s. : (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : -3
Rated speed rpm : 800 Rack travel in mm: 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x: 5.25 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250 Aneroid pressure hPa Del. quantity cm3/1000 strokes : 67.5 Tolerance cm3/1000 strong Check tolerance : + 2.5 Tolerance cm3/1000 strokes : 3.0 Check tolerance cm3/1000s. : 4.5 hPa CONTROL LEVER control lever position degree : 113.0 tolerance degree : + 4.0 Check tolerance cm3/1000s.

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1550 rack travel mm : 4.00 Rated speed rpm : 1425 LOW IDLE Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 8.40 Tolerance mm : + 0.10 Testina: rack travel mm : 2.00 Rated speed rpm : 590
Tolerance 1/min : + 30 Rated speed rpm : 100 CRT mm min. : > 19.00 TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 11.55 Tolerance mm : + 0.05 Rated speed rpm : 600 rack travel mm : 11.95 Tolerance mm :  $\leftarrow$  0.05 Rated speed rpm : 1050 rack travel mm : 11.60
Tolerance mm : + 0.10 Start interlock FUEL DELIVERY CHARACTERISTICS Aneroid pressure Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 57.0 Tolerance cm3/1000 strokes : +- 1.0

: +- 3.5

RATED SPEED

Aneroid pressure

850 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 64.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : <del>+-</del> 3.5

## STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 16.30 Tolerance mm : **←** 0.20

Del. quantity

cm3/1000 strokes : 83.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  5.0

Check tolerance

cm3/1000s. : **←** 8.0

## LOW IDLE

Rated speed rpm : 350

Del. quantity

cm3/1000 strokes : 11.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. 3.0 : +-

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

4.5 cm3/1000s.

#### Note remarks

Rafer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 30,12,96 : ISO 4113 Test oil

Combination No. : 0 403 466 151

Injection pump

Pump designation : PES6MW100/120RS1238 EP type number : 0 413 406 237

Governor

Governer design. : RSV450...1100MW2A367

Governer no. : 0 420 085 250

Cust. part No. : 3926877

Customer-spec, information Customer : CDC Motor : 6 CT : 138.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

: 2.80 Prestroke mm : ← 0.05 Tolerance mm Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.00 : +- 0.50 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00 travel Difference \* CS : 2.00

BASIC SETTING

Rated speed rpm : 1100 +	
Rack travel in mm: 10.80 + Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100
Del. quantity	Aneroid pressure hPa : 1200
cm3/1000 strokes : 130.0	Del. quantity cm3/1000 strokes : 130.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Rated speed rpm : 450	<pre>control lever position degree : 94.0 tolerance degree : + 4.0</pre>
+	•
Rack travel in mm: 5.40 + Tolerance mm : + 0.10 +	RATED SPEED rack travel mm : 9.80
Del. quantity +	Rated speed rpm : 1165
cm3/1000 strokes : 24.5	Tolerance 1/min : +- 5
cm3/1909 strokes : + 2.0 +	rack travel mm : 6.40
Check tolerance cm3/1000s. : + 4.5	Rated speed rpm : 1230 Tolerance 1/min : +- 5
Tolerance + cm3/1000 strokes : 3.5	rack travel mm : 1.00 Tolerance mm : + 0.70
Check tolerance +	Rated speed rpm : 1350
cm3/1000s. : 5.5	rack travel mm : 6.40 Rated speed rpm : 1230
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
GUIDE SLEEVE POSITION	LOW IDLE
İ	control lever
control lever	position degree : 78.0
position degree : -3 + Rated speed rpm : 800 +	tolerance degree : + 4.0
+	Control lever difference
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Grad : 16.0 tolerance degree : +- 4.0
governor spring pre-tension +	Setting point w/out bumper spring
click setting x : 3.00 +	Rated speed rpm : 450
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rack travel mm Tolerance mm	: 4.90 : +- 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.40 : +- 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 10.80 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 750 : 11.35 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 11.15 : + 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : 10.50 : ← 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 550 : 10.90 : ← 0.20
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 750

Del. quantity	
cm3/1000 strokes	: 140.0
Tolerance	
cm3/1000 strokes Check tolerance	: + 2.0
cm3/10008.	: <b>←</b> 5.0
Spreed	• • • • • • • • • • • • • • • • • • • •
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	. 0.0
cm3/1000s.	: 9.0
Aneroid pressure	
hPa	: -
Rated speed rpm	: 500
Del. quantity	. 424 6
cm3/1000 strokes Tolerance	: 121.0
cm3/1000 strokes	: +- 1.0
Check tolerance	- · · · · · · · · · · · · · · · · · · ·
cm3/1000s.	: <b>←</b> 3.0
STARTING FUEL DEL	IVERY
01/11/13/10 1 OCC 0CC	
Rated speed rpm	: 100
rack travel mm	: 20.50 : + 1.00
Tolerance mm Del. quantity	: + 1.00
cm3/1000 strokes	: 177.0
Tolerance	
cm3/1000 strokes	: + 10.C
Check tolerance	
cm3/1000s.	: +- 13.0
LOW IDLE	
Rated speed rpm	: 450
Del. quantity	· 700
cm3/1000 strokes	: 24.5
Tolerance	
cm3/1000 strokes	: <del>+</del> 2.0
Check tolerance cm3/1000s.	: <del>+</del> 4.5
Spreed	· '
Tolerance	
cm3/1000 strokes	. 35

End of test specification sheet

cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5

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#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.12.96 Edition : ISO 4113 Test oil

Combination No. : 0 403 466 153

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 405 237

Governor

Governer design. : RSV425...1100MW2A369

Governer no. : 0 420 085 252

Cust. part No. : 3930123

Customer-spec. information Customer : CDC Motor : 6 CT Power KW : 154.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

rnasing : 0-60-120-180-240
Tolerance : +- 0.50

Check

tolerance \*NW : ← 0.75

Start of delivery blocking

"NW after s.o.d. : 8.00 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00 Difference \* CS : 2.00

BASIC SETTING

Rated speed rpm : 1100	
Rack travel in mm : 11.55 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100  Aneroid pressure
Del. quantity cm3/1000 strokes : 138.5	hPa : 1200 Del. quantity cm3/1000 strokes : 138.5
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/100G strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0 Spreed Tolerance
Spreed Tolerance	cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5
cm3/1000 strokes : 4.0 Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER control lever
Rated speed rpm : 425	position degree : 103.0 tolerance degree : + 4.0
Rack travel in mm: 5.30 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 22.5	RATED SPEED rack travel mm : 10.50 Rated speed rpm : 1190 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed	rack travel mm : 4.50 Rated speed rpm : 1265 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000S. : 5.5	rack travel mm : 1.00 Tolerance mm : +- 0.70 Rated speed rpm : 1400 rack travel mm : 4.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1265
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 79.0 tolerance degree : + 4.0 Control lever difference
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Grad : 24.0 tolerance degree : + 4.0
governor spring pre-tension click setting x : 4.75	Setting point w/out bumper spring Rated speed rpm : 425
·	

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ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa  Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 11.55 : + 0.05
rack travel mm Tolerance mm Rated speed rpm CRT mm min.  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPEMSATOR TEST  SETTING Rated speed rpm Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 5.30 : + 0.10 : 100 : > 19.00 : 11.55 : + 0.05 : 750 : 12.50 : + 0.10
CRT mm min.  TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa Rated speed rpm rack travel mm Tolerance mm  MEASUREMENT	: > 19.00 : 11.55 : + 0.05 : 750 : 12.50 : + 0.10
TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa Pressure hPa Rated speed rpm rack travel mm Tolerance mm  MEASUREMENT	: 1100 : 11.55 : + 0.05 : 750 : 12.50 : + 0.10
Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 11.55 : + 0.05 : 750 : 12.50 : + 0.10
rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING Rated speed rpm Pressure hPa Pressure hPa Rated speed rpm rack travel mm Tolerance mm MEASUREMENT	: 11.55 : + 0.05 : 750 : 12.50 : + 0.10
rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa  Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 12.50 : + 0.10 : 500
COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa  Pressure hPa Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm Pressure hPa Pressure hPa Rated speed rpm rack travel mm Tolerance mm	
Pressure hPa Pressure hPa Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm MEASUREMENT	
	500 10.70 + 0.20
<b>-</b>	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 830 : 11.85 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 630 : 11.10 : + 0.20
Start interlock	
FUEL DELIVERY CHAR	ACTERISTICS

Del. quantity			
cm3/1000 strokes	:		156.5
Tolerance			
cm3/1000 strokes	:	+-	2.0
Check tolerance			
cm3/1000s.	:	+-	5.0
Spreed			
Tolerance			
cm3/1000 strokes	:		6.0
Check tolerance			0.0
cm3/1000s.	:		9.0
Aneroid pressure			
hPa	:		_
Rated speed rpm	•		500
Del. quantity	•		200
cm3/1000 strokes	•		124.5
Tolerance	•		164.5
cm3/1000 strokes	:	+-	1.0
Check tolerance	٠		
cm3/1000s.	:	+-	3.0
	•		

# STARTING FUEL DELIVERY

Rated speed rom rack travel mm Tolerance mm	:	+-	100 20.50 1.00
Del. quantity cm3/1000 strokes	:		177.0
Tolerance cm3/1000 strokes Check tolerance	:	+-	10.0
cm3/1000s.	:	+	13.0

# LOW IDLE

Rated speed rpm	:	425
Del. quantity cm3/1000 strokes	:	22.5
Tolerance cm3/1000 strokes	: +-	- 2.0
Check tolerance cm3/1000s.	• +-	- 4.5
Spreed	•	413
Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000s.	:	5.5

End of test specification sheet

hPa : 1200 Rated speed rpm : 750

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 31.12.96 Edition Edition Test oil : iso 4913

Combination No. : 0 403 456 154

Injection pump

Pump designation : PES6MW100/120RS1238

EF type number : 0 413 406 237

Governor

Governer design. : RSV500...1100MW2A370

Governer no. : 0 420 085 253

Cust. part No. : 3926880

Customer-spec. information Customer : CDC : 6 CT Motor Power KW : 154.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : x length mm : 600

2.0

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm 2.80 : + 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 : +- 0.50 Phasing

Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.00 : **←** 0.50 Tolerance

Check

tolerance \*NW : **←** 0.75

: 1 Barrel no.

Beginning of delivery differende

and maximum rack

travel 15.00 Difference \* CS : 2.00

BASIC SETTING

H21

Rated speed rpm : 1100	
Rack travel in mm: 11.60	FULL LOAD MELIVERY AT FULL LOAD STOP
Tolerance mm : + 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity cm3/1000 strokes : 139.0	hPa : 1200 Del. quantity
Tolerance	cm3/1000 strokes : 139.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : ← 4.0	cm3/1000S. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Ţ	control lever
+	position degreé : 108.0
Rated speed rpm : 500	tolerance degree : +- 4.0
Rack travel in mm: 5.25	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 10.60
Del. quantity + cm3/1000 strokes : 22.5 +	Rated speed rpm : 1165 Tolerance 1/min : +- 5
Tolerance	Total ance Milli
cm3/1000 strokes : +- 2.0	rack travel mm : 5.90
Check tolerance	Rated speed rpm : 1230
cm3/1000s. : + 4.5	1
Spreed	rack travel mm : 1.00
Tolerance + 3.5	Tolerance mm : +- 0.70 Rated speed rom : 1400
Check tolerance	Massa speca tem . (400
cm3/1000s. : 5.5	
+	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
†	control lever
I	position degree : 87.5
GUIDE SLEEVE POSITION	tolerance degree : +- 4.0
1	Control Lever difference
control lever	Grad : 20.5
position degree : -3 Rated speed rpm : 800	tolerance degree : + 4.0
Rack travel in mm: 0.50	Setting point w/out bumper spring
Tolerance mm : + 0.20	Rated speed rpm : 500 rack travel mm : 4.75
governor spring	Tolerance mm : +- 0.10
pre-tension click setting x : 3.75	Testing:
· ·	

Rated speed rpm rack travel mm	: 500 : 5.25
Tolerance mm	· + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.60 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 750 : 12.50 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 500 : 10.40 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 850 : 11.90 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 590 : 10.90 : + 0.20
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 750
Del. quantity cm3/1000 strokes	: 155.0
Tolerance cm3/1000 strokes	: +- 2.0

Check tolerance cm3/1000S. Spreed	: +-	5.0
Tolerance cm3/1000 strokes	:	6.0
Check tolerance	•	•••
cm3/1000s.	:	9.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	500 117.0 1.0 3.0

STARTING	FUEL	DEL	<b>IVERY</b>
----------	------	-----	--------------

Rated speed rpm	: 100
rack travel mm	: 20.50
Tolerance mm	: +- 1.00
Del. quantity	
cm3/1000 strokes	: 177.0
Tolerance	
cm3/1000 strokes	: +- 10.0
Check tolerance	
cm3/1000s.	: +- 13.0

# LOW IDLE

Rated speed rpm Del. quantity	•	500
cm3/1000 strokes Tolerance	:	22.5
cm3/1000 strokes Check tolerance	: +-	2.0
cm3/1000s.	: +	4.5
Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000s.	:	5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 31.12.96 Test oil : ISO 4113

Combination No. : 0 403 466 155

Injection pump

Pump designation : PES6MW100/120RS1238 EP type number : 0 413 406 237

Governor

Governer design. : RSV425...1190MW2A371

Governer no. : 0 420 085 254

Cust. part No. : 3930124

Customer-spec, information

Customer : CDC Motor

Power KW

: 6 CT : 130.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H24

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

Phasing Tolerance : 0-60-120-180-240 : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.25

Tolerance

: **←** 0.50

Check

tolerance \*NW

: **←** 0.75

Barrel no.

: 1

Beginning of delivery differende

and maximum rack

travel

Difference \* CS : 2.00

15.00

Rated speed rpm : 1190	<pre>governor spring pre-tension click setting x : 3.75</pre>
Rack travel in mm : 9.95 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 119.0	Rated speed rpm : 1190 Aneroid pressure hPa : 900
Tolerance cm3/1000 strokes : +- 1.0	Del. quantity cm3/1000 strokes : 119.0 Tolerance
Check tolerance cm3/1000s. : +- 4.0	cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
Spreed	Spreed Tolerance
Tolerance cm3/1000 strokes : 4.0	+ cm3/1000 strokes : 4.0 + Check tolerance + cm3/1000S. : 7.5
Check tolerance cm3/1000s. : 7.5	
	CONTROL LEVER
Rated speed rpm : 440	control lever position degree : 106.0
Rack travel in mm: 5.20 Tolerance mm : + 0.10	tolerance degree : + 4.0
Del. quantity cm3/1000 strokes : 24.5 Tolerance	+ RATED SPEED + rack travel mm : 8.90 + Rated speed rpm : 1270
<pre>cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5</pre>	Tolerance 1/min : + 5 rack travel mm : 4.50
Spreed Tolerance	+ Rated speed rpm : 1330 + Tolerance 1/min : + 5
cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5	† rack travel mm : 1.00 + Tolerance mm : + 0.70
	Rated speed rpm : 1400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.50 Rated speed rpm : 1330
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 85.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	Control lever difference Grad: 21.0 tolerance degree: + 4.0

Setting point w/ou	t bumper spring	+ Del. quantity + cm3/1000 strokes	• 125 በ
Rated speed rpm	: 440	+ Tolerance	. 123.0
rack travel mm	4.70	+ cm3/1000 strokes	: +- 2.0
Tolerance mm	· + 0.10	+ Check tolerance	
		+ cm3/1000s.	: <del>+-</del> 5.0
Testing:		+ Spreed	
		+ Tolerance	
	: 440	+ cm3/1000 strokes	: 6.0
	: 5.20	+ Check tolerance	
Tolerance mm	: + 0.10	+ cm3/1000s.	: 9.0
Rated speed rpm	: 100	Aneroid pressure	
·		+ hPa	; -
CRT mm min.	: > 19.00	+ Rated speed rpm	: 500
		+ Del. quantity	
		+ cm3/1000 strokes	: 115.5
TORQUE CONTROL		† Tolerance	
Doday cared	. 4400	+ cm3/1000 strokes	: +- 1.0
	: 1190	theck tolerance	: +- 3.0
	: 9.95 : +- 0.05	+ cm3/1000s.	: +- 3.0
loterance mm	: +- 0.05	Ī	
Rated speed rpm	• 750	I	
rack travel mm	10.30	+ STARTING FUEL DEL	TVERY
	· + 0.10	1	
		Rated speed rpm	: 100
		rack travel mm	: 20.50
ANEROID/ALTITUDE		+ Tolerance mm	: ← 1.00
COMPENSATOR TEST		+ Del. quantity	
		+ cm3/1000 strokes	: 177.0
		+ Tolerance	
SETTING		+ cm3/1000 strokes	: <del>+-</del> 10.0
	500	+ Check tolerance	. 47.0
	: 500 : 900	- cm3/1000s.	: +- 13.0
Pressure hPa	: 900	Ť	
Pressure hPa	: -	I	
Rated speed rpm	500	1	
rack travel mm	: 10.05	+ LOW IDLE	
	· + 0.20	+	
		+ Rated speed rpm	: 440
MEASUREMENT		+ Del. quantity	_
	500	+ cm3/1000 strokes	: 24.5
Rated speed rpm	: 500	+ Tolerance	
December 100		+ cm3/1000 strokes	: +- 2.0
Pressure hPa	: 550	Check tolerance	: +- 4.5
rack travel mm	: 10.20 : +- 0.05	t cm3/1000s.	· +- 4.5
Tolerance mm	; 0.03	+ Spreed + Tolerance	
Start interlock		cm3/1000 strokes	: 3.5
TOTAL TILET LOCK		- Check tolerance	
		+ cm3/1000s.	: 5.5
FILE OF THESE CLASS	ACTENICITY	+	
FUEL DELIVERY CHAR	MC1EKT91109	I	
Aneroid pressure		+	
MICIOIG DICESUIC		•	
hPa	: 900	+	
hPa	: 900 : 750	+ End of test speci	fication sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

: 31.12.96

Combination No. : 0 403 466 157

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV500...1100MW2A375

Governer no. : 0 420 085 258

Cust. part No. : 3929172

Customer-spec. information Customer : CDC : 6 CTA Motor Power KW : 171.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : ← 40 : ← 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar : +- 1.5 Tolerance bar

: 1 680 750 014 Test lines

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm 3.55 : +- 0.05 Tolerance mm Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 : +- 0.50 Tolerance

Check

: +- 0.75 tolerance \*NW

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00 travel Difference \* CS : 1.50

Rated speed rpm : 1100	
Rack travel in mm: 12.45 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100  Aneroid pressure
Del. quantity cm3/1000 strokes : 151.5	hPa : 1200 Del. quantity cm3/1000 strokes : 151.5
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
+	control lever
Rated speed rpm : 500	position degree : 110.0 tolerance degree : +- 4.0
Rack travel in mm: 5.00 +	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 11.40
Del. quantity	Rated speed rpm : 1160
cm3/1600 strokes : 21.5	Tolerance 1/min : + 5
Tolerance + 2.0 +	rack travel mm : 6.30
Check tolerance	Rated speed rpm ; 1230
cm3/1000s. : + 4.5	Tolerance 1/min : + 5
Spreed	
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5 Check tolerance	Tolerance mm : + 0.70 Rated speed rpm : 1325
cm3/1000s. : 5.5	Rated speed (pill : 1323
-	rack travel mm : 6.30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1230
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	<pre>control lever position degree : 88.0 tolerance degree : + 4.0 Control lever difference</pre>
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Grad : 22.0 tolerance degree : +- 4.0
governor spring + pre-tension +	Setting point w/out bumper spring
click setting x : 4.50	Rated speed rpm : 500

rack travel mm Tolerance mm		+ Del. quantity + cm3/1000 strokes	: 167.5
Testing:		+ Tolerance + cm3/1000 strokes	: + 2.0
		+ Check tolerance	
Rated speed rpm		- cm3/1000s. - Spreed	: + 5.0
rack travel mm Tolerance mm	: +- 0.10	+ Tolerance	
		+ cm3/1000 strokes	: 6.0
Rated speed rpm	: 100	+ Check tolerance + cm3/1000s.	: 9.0
CRT mm min.	: > 19.00	+ Aneroid pressure	
		hPa	•
TORQUE CONTROL		Rated speed rpm	500
		+ Del. quantity	
Rated speed rpm	: 1100	+ cm3/1000 strokes	: 119.5
rack travel mm Tolerance mm	: 12.45	+ Tolerance	
Tolerance mm	: <b>←</b> 0.05	+ cm3/1000 strokes	: <b>←</b> 1.0
	750	+ Check tolerance	. 70
Rated speed rpm	: 750	+ cm3/1000s.	: <b>←</b> 3.0
rack travel mm Tolerance mm		Ť	
rocerance min	: 0.10	Ι	
ANEROTO (AL TITUDE	Processo commo distribut que les incomes accides, trinares i commence qui come a communitati	STARTING FUEL DEL	IVERY
ANEROID/ALTITUDE		T Pated and mm	: 100
COMPENSATOR TEST		Rated speed rpm	
		rack travel mm Tolerance mm	: + 1.00
SETTING		Del. quantity	. 1.00
OET LANG		+ cm3/1000 strokes	: 145.5
Rated speed rpm	: 500	+ Tolerance	
Pressure hPa		+ cm3/1000 strokes	: <b>←</b> 10.0
		+ Check tolerance	
Pressure hPa		+ cm3/1000s.	: <b>←</b> 13.0
Rated speed rpm	: 500	t	
rack travel mm		†	
Tolerance mm	: + 0.20	I	
MEASUREMENT		+ LOW IDLE	
Rated speed rpm	: 500	Rated speed rpm	: 500
		- Del. quantity	
Pressure hPa	: 790	+ cm3/1000 strokes	: 21.5
rack travel mm	: 12.20	+ Tolerance	
Tolerance mm	: ← 0.20	+ cm3/1000 strokes	: <del>←</del> 2.0
		+ Check tolerance	
Pressure hPa	: 620 : 11.30	+ cm3/1000s. + Spreed	: +- 4.5
rack travel mm Tolerance mm	: +- 0.20	+ Tolerance	
roterance min	. +- 0.20	+ cm3/1000 strokes	: 3.5
Start interlock		+ Check tolerance	. 0.5
oral of misor count		+ cm3/1000s.	: 5.5
		+	
FUEL DELIVERY CHA	RACTERISTICS	‡	
		+	*****
Aneroid pressure		†	
hPa	: 1200	+ End of test speci	fication sheet
Rated speed rpm	: 750	+	

J01

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 31,12,96 Test oil : ISO 4113

Combination No. : 0 403 466 158

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV425...1100MW2A376

Governer no. : 0 420 085 259

Cust. part No. : 3929837

Customer-spec. information Customer : CDC Motor : 6 CTA-A Power KW : 172.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : : + 0.1 Tolerance bar

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar 208.5 Tolerance bar : **←** 1.5

: 1 680 750 014 Test lines

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

# **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm 3.55 : +- 0.05 Toterance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

Phasina : 0-60-120-130-240

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 Tolerance : +- 0.50

Check

: +- 0.75 tolerance \*NW

: 1 Barrel no.

Beginning of delivery differende

and maximum rack

15.00 Difference \* CS : 1.50

Rated speed rpm : 1100	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 12.75 + Tolerance mm: + 0.05 +	Rated speed rpm : 1100
Del. quantity	Aneroid pressure hPa : 900
cm3/1000 strokes : 144.0	Del. quantity
Tolerance	cm3/1000 strokes : 144.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
cm3/1000s. : +- 4.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0
Tolerance	Check tolerance cm3/1000s. : 7.5
cm3/1000 strokes : 4.0	
Check tolerance cm3/1000s. : 7.5	CONTROL LEVED
cm3/1000s. : 7.5 +	CONTROL LEVER
+	control lever
Badad aread area (75	position degree : 97.0
Rated speed rpm : 435 +	tolerance degree : +- 4.0
Rack travel in mm: 6.20	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 11.70
Del. quantity + cm3/1000 strokes : 22.5 +	Rated speed rpm : 1165 Tolerance 1/min : + 5
Tolerance	Total and Thirty
cm3/1000 strokes : +- 2.0 +	rack travel mm : 6.50
Check tolerance	Rated speed rpm : 1230
cm3/1000s. : ← 4.5 + 5preed	Tolerance 1/min : +- 5
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5	Tolerance mm : + 0.70
Check tolerance	Rated speed rpm : 1325
cm3/1000s. : 5.5	and days 1 and 4 50
I	rack travel mm : 6.50 Rated speed rpm : 1230
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	LOW IDLE
GUIDE SLEEVE POSITION +	
+	control lever
control lever	position degree : 74.0 tolerance degree : +- 4.0
position degree : -3 + Rated speed rpm : 800 +	
Rack travel in mm: 0.50	Control lever difference Grad : 23.0
Tolerance mm : + 0.20	tolerance degree : + 4.0
governor spring	Setting point w/out bumper spring
pre-tension + click setting x : 3.75 +	Rated speed rpm : 435
•	

rack travel mma Tolerance mm	:	+	5.70 0.10
Testing:			

Rated speed rpm 435 rack travel mm 6.20 Tolerance mm : +- 0.10

Rated speed rpm 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm 1100 12.75 rack travel mm : **←** 0.05 Tolerance mp

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm 500 900 Pressure hPa

Pressure hPa 500 Rated speed rpm 12.05 rack travel mm : **←** 0.20 Tolerance mm

**MEASUREMENT** 

500 Rated speed rpm

600 Pressure hPa 12.20 rack travel mm : + 0.20Tolerance mm

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm

Del. quantity

cm3/1000 strokes : 133.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. 3.0 STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm Tolerance mm : + 1.00Del. quantity

cm3/1000 strokes : 145.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 13.0

LOW IDLE

Rated speed rpm : 435 Del. quantity

cm3/1000 strokes : 22.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : +-Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.12.96 : ISO 4113

Combination No. : 0 403 466 159

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

@vernor

Governer design. : RSV550...1100MW2A377

Governer no.

: C 420 085 260

Cust. part No.

: 3927117

Customer-spec. information : CDC Customer Motor : 6 CTA

Power KW

: 171.5

#### TEST BENCH REQUIREMENTS

Inlet line

: 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

Tolerance bar

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 014

Outside diameter : 6.0

J05

x inside diameter: 2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : + 1.0

Prestroke mm

Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : - 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance \*NW

: +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Barrel no.

: 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference \* CS : 1.50

Rated speed rpm : 1100	
Rack travel in mm: 12.45	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance mm : + 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity cm3/1000 strokes : 151.5	hPa : 1200 Del. quantity cm3/1000 strokes : 151.5
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : + 1.0
Check tolerance cm3/1000s. : + 4.0	Check tolerance cm3/1000s. : +- 4.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Rated speed rpm : 550	control lever position degrée : 96.0 tolerance degree : + 4.0
+	
Rack travel in mm: 5.00 + Tolerance mm: + 0.10 +	RATED SPEED rack travel mm : 11.40
Del. quantity	Rated speed rpm : 1160
cm3/1000 strokes : 21.5	Tolerance 1/min : ← 5
cm3/1000 strokes : +- 2.0	rack travel mm : 6.70
Check tolerance	Rated speed rpm : 1205
cm3/1000s. : +- 4.5 +-	Tolerance 1/min : + 5
Tolerance + cm3/1000 strokes : 3.5 +	rack travel mm : 1.00 Tolerance mm : + 0.70
Check tolerance	Rated speed rpm : 1325
cm3/1000s. : 5.5	7.76
‡	rack travel mm : 6.70 Rated speed rpm : 1205
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	LOW IDLE
GUIDE SLEEVE POSITION	
+	control lever
control lever + position degree : - 3 +	position degree : 77.0 tolerance degree : +- 4.0
Rated speed rpm : 800	
Rack travel in mm: 0.50	Control lever difference Grad : 19.0
Tolerance mm : + 0.20	tolerance degree : +- 4.0
governor spring pre-tension	Setting point w/out bumper spring
click setting x : 2.00 +	Rated speed rpm : 550

rack travel mm	: 4.50	⊥ nel	quantity	
Tolerance mm	: + 0.10	+ cm3/1	1000 strokes	: 166.
Testing:		+ cm3/	rance 1000 strokes	: +- 2.
Rated speed rpm	: 550		k tolerance 1 <b>000</b> s.	: +- 5.
rack travel mm	5.00	Spree		• • •
Tolerance mm		+ Toler	rance	
Rated speed rpm	: 100		1000 strokes k tolerance	: 6.
			1000s.	: 9.
CRT mm min.	: > 19.00	‡ Anero	oid pressure	
		+ hPa		: -
TORQUE CONTROL			d speed rpm	: 500
	. 4400		quantity	440
Rated speed rpm rack travel mm			1000 strokes rance	: 119.
rack travel mm Tolerance mm			rance 1000 strokes	: +- 1
· - car earla.			k tolerance	• • • • • • • • • • • • • • • • • • • •
Rated speed rpm	: 750		1000s.	: +- 3.
rack travel mm		+		
Tolerance mm	: <b>←</b> 0.10	İ		
		T STAR	TING FUEL DELI	.VERY
ANEROID/ALTITUDE		+		. 400
COMPENSATOR TEST			d speed rpm travel mm	: 100
			rance mm	: + 1.0
SETTING			quantity	. 106
		+ cm3/	1000 strokes	: 145.
Rated speed rpm	: 500		rance	45
Pressure hPa	: 1200		1 <b>000</b> strokes k tolerance	: ← 10.
Pressure hPa	: -		1000s.	: + 13.
Rated speed rpm		+		
rack travel mm		+		
Tolerance mm	: + 0.20	‡ <u> </u>		
MEASUREMENT		LOW	(DLE	
Rated speed rpm	: 500			: 550
Pressure hPa	: 790		quantity 1 <b>000 str</b> ok <b>e</b> s	: 21.
rressure nra rack travel mm	: 12.20		rance	. 21
Tolerance mm	· + 0.20	+ cm3/	1000 strokes	: + 2.
_	400		k tolerance	
Pressure hPa	: 620 : 11.30		1000s.	: + 4.
rack travel mm Tolerance mm	: + 0.20	+ Spree	ea rance	
TOUT BILL THE			1000 strokes	: 3.
Start interlock		+ Check	k tolerance	
		- cm3/	1 <b>000</b> s.	: 5.
FUEL DELIVERY CHA		<del></del>		
		+		<del></del>
Aneroid pressure hPa	: 1200	† End	of test specif	icetion :
		I End o	or rest specifi	itation S
Rated speed rpm	: 750	+		

5.5 End of test specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31,12,96 : 31.12.96 : ISO 4113

Combination No. : 0 403 466 160

Injection pump

Pump designation : PES6MW100/120RS1240 EP type number : 0 413 406 239

Governor

Governer design. : RSV500...1100MW2A378

Governer no. : 0 420 085 261

Cust. part No. : 3927129

Customer-spec. information Customer : CDC Motor : 6 CTA : 173.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

40 temp. °C : + 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.55 : **←** 0.50 Tolerance mm Check tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 : +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00 travel Difference \* CS : 1.50

BASIC SETTING

J08

Rated speed rpm : 1100 +	
Rack travel in mm: 12.45 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1100
Del. quantity cm3/1000 strokes : 151.5	Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 151.5
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000S. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
+	control lever position degree : 108.0
Rated speed rpm : 500 +	tolerance degree : +- 4.0
Rack travel in mm: 5.00 + Tolerance mm: + 0.10 + Del. quantity	RATED SPEED rack travel mm : 11.40 Rated speed rpm : 1160
cm3/1000 strokes : 21.5	Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0 + Check tolerance cm3/1000s. : + 4.5	rack travel mm : 6.30 Rated speed rpm : 1230 Tolerance 1/min : +- 5
Spreed + Tolerance + cm3/1000 strokes : 3.5	rack travel mm : 1.00 Tolerance mm : + 0.70
Check tolerance cm3/1000s. : 5.5	Rated speed rpm : 1375 rack travel mm : 6.30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1230
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 86.0 tolerance degree : + 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Control lever difference Grad : 22.0 tolerance degree : +- 4.0
governor spring pre-tension	Setting point w/out bumper spring
click setting x : 3.75	Rated speed rpm : 500

rack travel mm rolerance mm	: 4.50 : +- 0.10	Del. quantity cm3/1000 strokes	: 167.5
esting:		+ Tolerance + cm3/1000 strokes	: <b>←</b> 2.0
ited speed rpm	: 500	+ Check tolerance + cm3/1000s.	: +- 5.0
travel mm ance mm	: 5.00	+ Spreed	
<b>Ma</b>	: +- C.10	† Tolerance + cm3/1000 strokes	: 6.0
i rpm	: 100	+ Check tolerance	
١.	: > 19.00	† cm3/1000s.	: 9.0
		Aneroid pressure	
		Rated speed rpm	500
		→ Del. quantity	
ed rpm	: 1100	cm3/1000 strokes	: 119.5
elmm emm	: 12.45 : +- 0.05	† Tolerance † cm3/1000 strokes	٠ 1 ١
~ 100H		+ Check tolerance	
ed rpm	: 750	- cm3/1000s.	: <del>+</del> 3.0
elmm	: 13.40 : +- 0.10	‡	
		CTARTING GUEL AGI	TUEDV
ALTITUDE		STARTING FUEL DEL	TVEKT
OR TEST		Rated speed rpm	: 100
		rack travel mm	20.50
		Tolerance mm  Del. quantity	: +- 1.00
		cm3/1000 strokes	: 145.5
ed rpm		+ Tolerance	
hPa	: 1200	+ cm3/1000 strokes + Check tolerance	: <b>←</b> 10.0
Pa		- cm3/1000s.	: ← 13.0
d rom	500	+	
elmm mm	: 10.50 : +- 0.20	<b>†</b>	
	. +- 0.20	Ţ	
IENT		+ LOW IDLE	
ed rpm	: 500	Rated speed rpm	: 500
Pa Pa	: 790	+ Del. quantity + cm3/1000 strokes	: 21.5
el mm	12.20	+ Tolerance	. (11.)
mm	: <b>+</b> 0.20	+ cm3/1000 strokes	: <del>←</del> 2.0
hPa	: 620	+ Check tolerance + cm3/1000s.	: <b>←</b> 4.5
vel mm	: 11.30	Spreed	· · · · · · · · · · · · · · · · · · ·
mm	: <b>-</b> 0.05	+ Tolerance	<u>-</u> -
erlock		+ cm3/1000 strokes	: 3.5
rlock		+ Check tolerance cm3/1000s.	: 5.5
ERY CHA	RACTERISTICS	‡	
d pressure		<u> </u>	<del></del>
- p. 100010	: 1200	End of test speci	fication sheet
speed rpm	: 750	+	

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96 Test oil : ISO 4113

Combination No. : 0 403 466 162

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV500...1100MW2A380

Governer no. : 0 420 085 263

Cust. part No. : 3930454

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 160.3

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. \*C : 40
Tolerance \*C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00 Difference ° CS : 1.50

Rated speed rpm : 1100	
Rack travel in mm: 11.95 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1100
Del. quantity cm3/1000 strokes : 140.5	Aneroid pressure hPa : 1200 Del. quantity
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : 140.5 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000S. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
	control lever position degree : 94.0
Rated speed rpm : 550	tolerance degree : +- 4.0
Rack travel in min: 5.00  Tolerance mm: + 0.10  Del. quantity  cm3/1000 strokes: 21.5	RATED SPEED rack travel mm : 10.90 Rated speed rpm : 1190 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : + 2.0	rack travel mm : 5.80
Check tolerance cm3/1000s. : + 4.5	Rated speed rpm : 1235 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 1.00 Tolerance mm : +- 0.70 Rated speed rpm : 1400
cm3/10 : 5.5	rack travel mm : 5.80 Rated speed rpm : 1235
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : -3 R#sted speed rpm : 800	control lever position degree : 72.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Control lever difference Grad : 22.0 tolerance degree : +- 4.0
governor spring pre-tension	Setting point w/out bumper spring
click setting x : 3.00	Rated speed rpm : 550

rack travel mm Tolerance mm	: 4.50 : + 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 550 : 5.00 : + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.95 : ← 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : 10.90 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 755 : 11.60 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 625 : 11.10 : + 0.20
Start interlock	
PI PI PI VI 10004 0114	DACTEDICTION
FUEL DELIVERY CHA	KACTERISTICS
Aneroid pressure hPa	: -
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes Tolerance	: 123.0
cm3/1000 strokes	: +- 1.0

100 20.50 - 1.00 145.5 - 10.0
20.50 - 1.00 145.5 - 10.0
- 10.0
- 13.0
550
21.5
- 2.0
- 4.5
3.5
3.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96 Test oil : ISO 4113

Combination No. : 0 403 466 163

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 406 237

Governor

Governer design. : RSV450...1000MW2A381

Governer no. : 0 420 085 264

Cust. part No. : 3929166

Customer-spec. information
Customer: : CDC
Motor : 6 CT
Power KW : 153.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm :  $\leftarrow$  0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d.: 7.50 Tolerance : + 0.50

Check

tolerance \*NW ; + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack

travel : 15.00 Difference \* CS : 2.00

Rated speed rpm : 1000	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 12.25	-
Tolerance mm : + 0.05	Rated speed rpm : 1000
	- Aneroid pressure
Del. quantity	hPa : 1200
cm3/1000 strokes : 148.0	- Del. quantity
	- cm3/1000 strokes : 148.0
Tolerance	- Tolerance
cm3/1000 strokes : +- 1.0	- cm3/1000 strokes : +- 1.0
	- Check tolerance
Check tolerance	- cm3/1000s. + 4.0
cm3/1000s. : +- 4.0 -	Spreed
	Tolerance
Spreed	- cm3/1 <b>000 s</b> trokes : 4.0
	- Check tolerance
Tolerance -	- cm3/1000s. : 7.5
cm3/1000 strokes : 4.0 -	
Check tolerance -	
cm3/1000s. : 7.5	CONTROL LEVER
-	-
•	- control lever
-	- position degree : 100.0
Rated speed rpm : 450 -	tolerance degree : +- 4.0
Rack travel in mm: 5.40	- RATED SPEED
Tolerance mm : + 0.10 -	rack travel mm : 11.20
Del. quantity -	- Rated speed rpm : 1065
cm3/1000 strokes : 21.0 -	Tolerance 1/min : +- 5
Tolerance -	
cm3/1000 strokes : +- 2.0	rack travel mm : 7.00
Check tolerance -	Rated speed rpm : 1120
cm3/1000s. : +- 4.5 -	- Tolerance 1/min : + 5
Spreed	
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5	Rated speed rpm : 1200
Check tolerance -	7.00
cm3/1000s. : 5.5 -	rack travel mm : 7.00
1	Rated speed rpm : 1120
(D) CETTING OF THECTTON DUMP	
(B) SETTING OF INJECTION PUMP - WITH GOVERNOR	
MTILL GOAEVIANU	
]	LOW IDLE
GUIDE SLEEVE POSITION	
•	control lever
	position degree : 81.0
control lever	tolerance degree : +- 4.0
position degree : - 3	-
Rated speed rpm : 800 -	- Control lever difference
	- Grad : 19.0
Rack travel in mm: 0.50	tolerance degree : +- 6.0
Tolerance mm : + 0.20	
	Setting point w/out bumper spring
governor spring	•
pre-tension -	Rated speed rpm : 450
click setting x : 3.75	rack travel mm : 4.90
· · · · · · · · · · · · · · · · · · ·	

<b>T</b> . 1	: + 0.10	∔ De
Tolerance mm	: 0.10	
Testing:		+ cm
resting.		T cm
Rated speed rpm	: 450	+ Che
rack travel mm	5.40	+ cm
Tolerance mm	: +- 0.10	+ Spi
		+ To
Rated speed rpm	: 100	+ cm
		+ Che
CRT mm min.	: > 19.00	+ cm
Tabalis and Island		And
TORQUE CONTROL		+ hPt
Dated assed ass	: 1000	+ Rat
Rated speed rpm rack travel mm	: 1000 : 12.25	. T cm
Tolerance m	: +- 0.05	To
TOCCI GITTE INT		+ cm
Rated speed rpm	: 750	+ Ch
rack travel mm	: 12.45	+ cm
Tolerance mm	: <b>←</b> 0.10	+
		I -
ANEROID/ALTITUDE COMPENSATOR TEST		+ ST
COMPENSATOR TEST		T Rat
		+ ra
SETTING		+ To
		+ De
Rated speed rpm	: 500	+ cm
Pressure hPa	: 1200	+ To
		+ cm
Pressure hPa	500	+ Ch
Rated speed rpm	: 500	+ cm
rack travel mm Tolerance mm	: 10.50 : + 0.20	Ť
ioterance mm	: +- 0.20	T
		+
MEASUREMENT		‡ =
MEASUREMENT Rated speed rpm	: 500	LOI
Rated speed rpm		Ra
Rated speed rpm Pressure hPa	: 850	Ran De
Rated speed rpm Pressure hPa rack travel mm	: 850 : 12.10	Ra- De
Rated speed rpm Pressure hPa rack travel mm	: 850	Rander Programme
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 850 : 12.10 : + 0.20	Rander Programmer Prog
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa	: 850 : 12.10 : + 0.20 : 590	Rander Ra
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm	: 850 : 12.10 : + 0.20	Rander De Comit Co
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa	: 850 : 12.10 : + 0.20 : 590 : 11.00	Rander Ra
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm	: 850 : 12.10 : + 0.20 : 590 : 11.00	Rain De Cini.
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 850 : 12.10 : + 0.20 : 590 : 11.00	Rander Chicken
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 850 : 12.10 : + 0.20 : 590 : 11.00	Rander Children Child
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 850 : 12.10 : ← 0.20 : 590 : 11.00 : ← 0.20	Rander Chicken
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm Start interlock FUEL DELIVERY CHA	: 850 : 12.10 : ← 0.20 : 590 : 11.00 : ← 0.20	Rander Chicken
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm Start interlock	: 850 : 12.10 : ← 0.20 : 590 : 11.00 : ← 0.20	Rander Chicken

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 155.0 : + 2.0 : + 5.0 : 6.0 : 9.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1009 strckes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 500 : 117.0 : + 1.0 : + 3.0
STARTING FUEL DEL Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	IVERY  : 100 : 20.50 : ← 1.00 : 177.0 : ← 10.0 : + 13.0
Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 450 : 21.0 : ← 2.0 : ← 4.5 : 3.5 : 5.5

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31,12,96 : ISO 4113

Combination No. : 0 403 466 164

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV500...1100MW2A382

Governer no.

: 0 420 085 265

Cust. part No.

: 3929171

Customer-spec. information

Customer : CDC

Motor

: 6 CTA

Power KW

: 171.5

# TEST BENCH REQUIREMENTS

Inlet line

: 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve

: 2 417 413 093

Inlet press. bar :

Tolerance bar : +- 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure bar

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 014

Outside diameter :

6.0

x inside diameter: 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : +- 1.0

: 3.55 Prestroke mm

: +- 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 Tolerance : + 0.50

Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference \* CS : 1.50

Rated speed rpm : 1100	<del></del>
+	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 12.45 Tolerance mm: + 0.05	Rated speed rpm : 1100
+	Aneroid pressure
Del. quantity	hPa : 1200
cm3/1000 strokes : 151.5	Del. quantity cm3/1000 strokes : 151.5
Tolerance	Tolerance
cm3/1000 strokes : $\leftarrow$ 1.0	cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
$cm3/1000s.$ : $\leftarrow$ 4.0	Spreed
+	Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance	cm3/1000s. : 7.5
cm3/1000 strokes : 4.0	. , , ,
Check tolerance	**************************************
cm3/1000s. : 7.5	CONTROL LEVER
	control lever
1	position degree : 98.0
Rated speed rpm : 500	tolerance degree : + 4.0
Rack travel in mm: 5.00	RATED SPEED
Tolerance mm : + 0.10 +	rack travel mm : 11.40
Del. quantity +	Rated speed rpm : 1160
cm3/1000 strokes : 21.5 +	Tolerance 1/min : +- 5
Tolerance + 2.0 +	rack travel mm : 6.70
Check tolerance	Rated speed rpm : 1205
cm3/1000s. : + 4.5	Tolerance 1/min : +- 5
Spreed	
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5 + Check tolerance +	Tolerance mm : +- 0.70 Rated speed rpm : 1325
cm3/1000s. : 5.5	nated speed (pill . 1925
+	rack travel mm : 6.70 Rated speed rpm : 1205
+	Rated speed rpm : 1205
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
<u> </u>	LOW IDLE
GUIDE SLEEVE POSITION	
Ĭ	control lever
control lever	position degree : 77.0
position degree : -3	tolerance degree : +- 4.0
Rated speed rpm : 800	Cananal lavian difference
Rack travel in mm: 0.50	Control lever difference Grad : 21.0
Tolerance mm : + 0.20	tolerance degree : + 4.0
governor spring	Setting point w/out bumper spring
pre-tension +	Poted speed speed 500
click setting x : 2.00 +	Rated speed rpm : 500

rack travel mm	. / 50
Tolerance mm	: 4.50 : + 0.10
Testing:	
Rated speed rpm	: 500
rack travel mm Tolerance mm	: 5.00 : + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm	
rack travel mm Tolerance mm	: 12.45 : + 0.05
Rated speed rpm	: 750
rack travel mm Tolerance mm	: 13.40 : +- 0.10
ANEROID/ALTITUDE	
COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm	: -
rack travel mm	: 10.50
Tolerance mm	: + 0.20
MEASUREMENT	<b>720</b>
Rated speed rpm	: 500
Prossure hPa rack travel mm	: 790 : 12.25
Tolerance mm	: <b>←</b> 0.20
Pressure hPa rack travel mm	: 620 : 11.25
Tolerance mm	: <b>←</b> 0.20
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS

:		167.5
:	+-	2.0
:	+-	5.0
:		6.0
:		9.0
:		-
•		500
•		
•		119.5
•		117.00
•	+-	1.0
•	•	1.0
	_	3.0
•	4	3.0
	•••••••••••••••••••••••••••••••••••••••	:

# STARTING FUEL DELIVERY

Rated speed rpm rack travel mm Tolerance mm	: +-	100 20.50 1.00
Del. quantity cm3/1000 strokes Tolerance	:	145.5
cm3/1000 strokes	: +	10.0
Check tolerance cm3/1000s.	: +-	13.0

# LOW IDLE

Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	21.5
Tolerance		
cm3/1000 strokes	: +-	. 2.0
Check tolerance		
cm3/1000s.	: +-	4.5
Spreed		
Tolerance		
cm3/1000 strokes	:	3.5
Check tolerance		
cm3/1000s.	:	5.5
	•	

End of test specification sheet

J19

hPa : 1200 Rated speed rpm : 750

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 31,12,96 Test oil : ISO 4113

Combination No. : 0 403 466 165

Injection pump

Pump designation : PES6MW100/120RS1241

EP type number : 0 413 406 260

Governor

Governer design. : RSV450...1250MW0A383

Governer no. : 0 420 085 266

Cust. part No. : 3929164

Customer-spec. information Customer : CDC Motor : 6 CT Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

Temp. "C Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm 2.80 : + 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

Tolerance : 0-60-120-180-240

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.25 Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00 Difference ° CS : 1.50

Rated speed rpm : 1250	<u> </u>
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 11.05 Tolerance mm : +- 0.05	- Rated_speed rpm : 1250
Dol muchida	Aneroid pressure
Del. quantity cm3/1000 strokes : 123.5	hPa : 900 Del. quantity
	- cm3/1000 strokes : 123.5
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance	- cm3/1000s. : +- 4.0
cm3/1000s. : + 4.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0
	- Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER
	control lever
-	position degree : 96.0
Rated speed rpm : 450	tolerance degree : +- 4.0
Rack travel in mm: 5.90	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 9.90
Del. quantity -	Rated speed rpm : 1325
cm3/1000 strokes : 27.0 -	Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0	rack travel mm : 6.70
Check tolerance -	Rated speed rpm : 1390
cm3/1000s. : +- 4.5	Tolerance 1/min : +- 5
Spreed	t
Tolerance -	rack travel mm : 1.00
cm3/1000 strokes : 3.5	Tolerance mm : +- 0.70 Rated speed rpm : 1510
Check tolerance - cm3/1000s. : 5.5	r Rated Speed rpm : 1310
· 3.3	rack travel mm : 6.70
	Rated speed rpm : 1390
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	LOW IDLE
GUIDE SLEEVE POSITION	
-	control lever
control lever	position degree : 76.0
position degree : - 3 Rated speed rpm : 800	tolerance degree : +- 4.0
	Control lever difference
Rack travel in mm : 0.50 - Tolerance mm : + 0.20 -	Grad : 20.0 tolerance degree : +- 4.0
governor spring - pre-tension -	Setting point w/out bumper spring
click setting $x : 4.50$	Rated speed rpm : 450
10.0	

rack travel mm Tolerance mm	: : +-	5.40
forcience min	, +-	0.10

# Testing:

Rated speed rpm	:		450
rack travel mm	:		5.90
Tolerance mm	:	+-	0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

# TORQUE CONTROL

Rated speed rpm	:	1250
rack travel mm	:	11.05
Tolerance mm	:	+- 0.05

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated	speed rpm	:	500
Pressu	ure hPa	•	900

Pressure hPa Rated speed rpm : 500 rack travel mm 10.20 Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 500

600 Pressure hPa 10.60 rack travel mm : **←** 0.05 Tolerance mm

Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm : Del. quantity cm3/1000 strokes : 114.5

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s.

: <del>+-</del> 3.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.50
Tolerance mm	: +-	1.00
Del. quantity		
cm3/1000 strokes	:	171.5
Tolerance		
cm3/1000 strokes	: +-	10.0
Check tolerance		
cm3/1000s.	: +-	13.0

# LOW IDLE

Rated speed rpm Del. quantity	:	450	
cm3/1000 strokes	:	27.0	
cm3/1000 strokes	: +-	2.0	
Check tolerance cm3/1000s. Spreed	; +-	4.5	
Tolerance cm3/1000 strokes Check tolerance	:	3.5	
cm3/1000s.	:	5.5	

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

: 31.12.96

Combination No. : 0 403 466 166

Injection pump

Pump designation : PES6MW100/120RS1241

EP type number : 0 413 406 240

Governor

Governer design. : RSV450...1250MW0A384

Governer no. : 0 420 085 267

Cust. part No. : 3929163

Customer-spec. information Customer : CDC Motor : 6 CT Power KW : 160.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C ÷ + 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

par values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 : +- 0.50 Phasing

Tolerance : **←** 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.25 : + 0.50 Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

: 15.00 travel Difference \* CS : 1.50

Rated speed rpm : 1250	
Rack travel in mm: 12.25	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance mm : + 0.05	Rated speed rpm : 1250 Aneroid pressure
Del. quantity cm3/1000 strokes : 142.5	hPa : 1200 Del. quantity
Tolerance	cm3/1000 strokes : 142.5 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance cm3/1000s. : +- 4.0	cm3/1000s. : +- 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
	control lever
Rated speed rpm : 450	position degree : 93.0 tolerance degree : ← 4.0
Rack travel in mm: 5.00	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 11.20
Del. quantity cm3/1000 strokes : 14.0	Rated speed rpm : 1315 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : +- 2.0 +-	rack travel mm : 6.60
Check tolerance + 4.5	Rated speed rpm : 1390 Tolerance 1/min : +- 5
Spreed	
Tolerance cm3/1000 strokes : 3.5	rack travel mm : 1.00 Tolerance mm : + 0.70
Check tolerance	Rated speed rpm : 1495
cm3/1000s. : 5.5	rack travel mm : 6.60 Rated speed rpm : 7390
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 7390
WITH GOVERNOR	
	LOW IDLE
GUIDE SLEEVE POSITION	
control lever	control lever position degree : 72.0
position degree : -3 Rated speed rpm : 800	tolerance degree : + 4.0
Rack travel in mm: 0.50	Control lever difference Grad : 21.0
Tolerance ram : + 0.20	tolerance degree : + 4.0
governor spring pre-tension	Setting point w/out bumper spring
click setting x : 4.50	Rated speed rpm : 450

rack travel mm Tolerance mm	: 4.50 : + 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.00 : + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 12.25 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	500 9.90 + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 800 : 11.35 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 600 : 10.35 : ← 0.25
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
hPa Rated speed rpm	: - : 500
Del. quantity	
cm3/1000 strokes	

Check tolerance cm3/1000s. : +- 3.0 STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 1.30 Del. quantity Del. quantity cm3/1000 strokes : 171.5 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0 Check tolerance cm3/1000s. : + 13.0 LOW IDLE Rated speed rpm : 450 Del. quantity cm3/1000 strokes : 14.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s. : +- 4.5

End of test specification sheet

cm3/1000 strokes : 3.5

cm3/1000s. : 5.5

Check tolerance

Spreed Tolerance

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.12.96 : ISO 4113

Combination No. : 0 403 466 167

Injection pump

Pump designation : PES6MW100/120RS1240

EP type number : 0 413 406 239

Governor

Governer design. : RSV475...1000MW2A388 Governer no. : 0 420 085 268

Cust. part No. : 3929173

Customer-spec. information Customer : CDC Motor : 6 CTA Power KW : 171.5

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : ഗവ

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

3.55 Prestroke mm : + 0.05 Tolerance mm Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.00 : +- 0.50 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

15.00 travel Difference \* CS : 1.50

Rated speed rpm : 1000	‡
D. J. Nov. 1. 20 Nov. 42.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 12.95 Tolerance mm : +- 0.05	+ Rated speed rpm : 1000
Oterance min : - 0.05	Rated speed rpm : 1000 Aneroid pressure
Del. quantity	hPa : 1200
cm3/1000 strokes : 157.0	Del. quantity
	+ cm3/1000 strokes : 157.0
Tolerance	+ Tolerance
cm3/1000 strokes : +- 1.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
Check tolerance	+  cm3/1000s. : + 4.0
cm3/1000S. : +- 4.0	+ Spreed
	† Tolerance
Spreed	+ cm3/1000 strokes : 4.0
Talayansa	+ Check tolerance + cm3/1000s. : 7.5
Tolerance cm3/1000 strokes : 4.0	I (1.5)
UND/ 1000 311 0003 . 4.0	I
Check tolerance	Ţ
cm3/1000s. : 7.5	↓ CONTROL LEVER
	+
	∔ control lever
	position degree : 102.0
Rated speed rpm : 475	tolerance degree : +- 4.0
But Americal Services B AP	1 00555
Rack travel in mm: 5.15	RATED SPEED
Tolerance mm : + 0.10	+ rack travel mm : 11.90
Del. quantity cm3/1000 strokes : 21.5	+ Rated speed rpm : 1055 - Tolerance 1/min : + 5
Tolerance	± loterance i/min : + 5
cm3/1000 strokes : +- 2.0	rack travel mm : 5.80
Check tolerance	Rated speed rpm : 1135
cm3/1000s. : +- 4.5	Tolerance 1/min : +- 5
Spreed	
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5	Tolerance mm : + 0.70
Check tolerance	Rated speed rpm : 1230
cm3/1000s. : 5.5	†
	rack travel mm : 5.80
AN APPTUAL OF THE PATRICLE MAIN	Rated speed rpm : 1135
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	I
	LOW IDLE
GUIDE SLEEVE POSITION	+
	+
	- control lever
control lever	+ position degree : 83.5
position degree : - 3	tolerance degree : + 4.0
Rated speed rpm : 800	Control loves differences
Deal Americal de ser a 0.50	Control lever difference
Rack travel in mm: 0.50	+ Grad : 18.5
Tolerance mm : + 0.20	tolerance degree : +- 4.0
governor spring	+ Setting point w/out bumper spring
governor spring pre-tension	T secritis house more pumper spring
click setting x : 3.25	Rated speed rpm : 475
ceren secting A . Sec.	1 mana obean ibin t in

rack travel mm Tolerance mm	: 4.65 : + 0.10	‡	Del. quantity cm3/1000 strokes	: 169.0
Testing:		‡	Tolerance cm3/1000 strokes	: + 2.0
Rated speed rpm rack travel mm Tolerance mm	: 5.15	‡	Check tolerance cm3/1000S. Spreed	: <b>←</b> 5.0
Rated speed rpm	: + 0.10 : 100	Ŧ	Tolerance cm3/1000 strokes Check tolerance	: 6.0
	: > 19.00	1	cm3/1000s.	: 9.0
CCC (MM MITTEL	. > 17.60	Ŧ	Aneroid pressure	
TORQUE CONTROL		-	Rated speed rpm Del. quantity	500
Rated speed rpm rack travel mm	: 1000 : 12.95	· Ŧ	cm3/1000 strokes	: 128.5
Tolerance mm	: + 0.05	Ŧ	cm3/1000 strokes Check tolerance	: + 1.0
Rated speed rpm rack travel mm Tolerance mm	: 13.70	Ī	cm3/1000s.	: +- 3.0
		‡	STARTING FUEL DEL	.IVERY
ANEROID/ALTITUDE COMPENSATOR TEST		‡	Rated speed rpm	: 100 : 20.50
SETTING		‡	Tolerance mm Del. quantity	: ← 1.00
Rated speed rpm	: 500	‡	cm3/1000 strokes Tolerance	: 147.5
Pressure hPa	: 1200	‡	cm3/1000 strokes Check tolerance	: ← 10.0
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 500 : 11.00 : + 0.20	+++++++++++++++++++++++++++++++++++++++	cm3/1000s.	: + 13.0
MEASUREMENT		‡	LOW IDLE	
Rated speed rpm	: 500	<u> </u>	Rated speed rpm Del. quantity	: 475
Pressure hPa rack travel mm	: 790 : 12.70	Ŧ	cm3/1000 strokes	: 21.5
Tolerance mm	: + 0.20	Ī	cm3/1000 strokes Check tolerance	: +- 2.0
Pressure hPa rack travel mm	: 620 : 11.80	+	cm3/1000s. Spreed	: +- 4.5
Tolerance mm	: ← 0.20	Ŧ	Tolerance cm3/1000 strokes	: 3.5
Start interlock		‡	Check tolerance cm3/1000s.	: 5.5
FUEL DELIVERY CHA	NRACTERISTICS			
Aneroid pressure hPa	: 1200	‡	End of test speci	fication shee
Rated speed rpm	: 750	+		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 31.12.96 Edition Test oil : 51.12.90

Combination No. : 0 403 466 172

Injection pump

Pump designation : PES6MW100/120RS1241

EP type number : 0 413 406 240

Governor

Governer design. : RSV450...1250MW0A392

Governer no. : 0 420 085 280

Cust. part No. : 3930412

Customer-spec. information Customer : CDC Motor : 6 CT Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

40 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K01

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.80 Tolerance mm :  $\leftarrow$  0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.00

Firing order : 1-5-3-6-2-

rhasing : 0-60-120-180-240
Tolerance : +- 0.50

Check

: +- 0.75 tolerance \*NW

Start of delivery blocking

\*NW after s.o.d. : 8.25 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00 Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1250	
Rack travel in mm: 11.45 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250  Aneroid pressure
Del. quantity cm3/1000 strokes : 132.0	hPa : 1200 Del. quantity cm3/1000 strokes : 132.0
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : + 4.0	Check tolerance cm3/1000s. : +- 4.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Rated speed rpm : 450	control lever  position degree : 96.0  tolerance degree : + 4.0
Rack travel in mm: 5.55	RATED SPEED
Tolerance mm : + 0.10 +	rack travel mm : 10.40 Rated speed rpm : 1320 Tolerance 1/min : + 5
Tolerance + 2.0 +	Tolerance 1/min : + 5 rack travel mm : 6.80
Check tolerance cm3/1000s. : +- 4.5	Rated speed rpm : 1390 Tolerance 1/min : +- 5
Spreed Tolerance	rack travel mm : 1.00
<pre>cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5</pre>	Tolerance mm : +- 0.70 Rated speed rpm : 1500
1	rack travel mm : 6.80 Rated speed rpm : 1390
(B) SEITING OF INJECTION PUMP WITH GOVERNOR	
GUIDE SLEEVE POSITION	LOW IDLE
‡	control lever
control lever position degree : -3 Rated speed rpm : 800	position degree : 77.0 tolerance degree : + 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Control lever difference Grad: 19.0 tolerance degree: +- 4.0
governor spring	Setting point w/out bumper spring
pre-tension click setting x : 5.00	Rated speed rpm : 450
K02	

rack travel mm Tolerance mm	: 5.05 : +- 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 450 : 5.55 : + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 11.45 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1200
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	500 10.05 + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 800 : 11.35 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 600 : 10.50 : + 0.20
Start interlock	
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: - : 500
Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes	: + 1.0

K03

Check tolerance cm3/1000s. : +- 3.0	
STARTING FUEL DELIVERY	
Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 1.00 Del. quantity cm3/1000 strokes : 171.5 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000s. : + 13.0	
LOW IDLE	
Rated speed rpm : 450 Del. quantity cm3/1000 strokes : 27.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 5.5	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 06,01,97 Edition Test oil : ISO 4113

Combination No. : 0 403 466 174

Injection pump

Pump designation : PES6MW100/120RS1238 EP type number : 0 413 406 237

Governor

Governer design. : RSV500...1100MW0A398

Governer no. : 0 420 085 287

Cust. part No. : 3930122

Customer-spec. information Customer : CDC Motor : 6 CT : 112.5 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp, °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-: 4

Phasing : 0-60-120-180-240 Tolerance : ÷- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50 : +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

: 1 Barrel no.

Beginning of delivery differende

and maximum rack

travel 15.00 Difference \* CS : 2.00

### BASIC SETTING

Rated speed rpm : 1100

**K04** 

Rack travel in mm: 9.95 Tolerance mm: + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 1100
Del. quantity +	Aneroid pressure
cm3/1000 strokes : 112.0 +	hPa : -
1	Del. quantity
Tolerance	cm3/1000 strokes : 112.0
cm3/1000 strokes : + 1.0 +	Tolerance
	cm3/1000 strokes : +- 1.0
Check tolerance +	Check tolerance
cm3/1000s, : + 4.0 $+$	cm3/1000s. : +- 4.0
	Spreed
Spreed	Tolerance
obi eed T	cm3/1000 strokes : 4.0
<u> </u>	
Tolerance	Check tolerance
cm3/1000 strokes : 4.0 +	cm3/1000s. : 7.5
+	
Check tolerance	
cm3/1000s. : 7.5	
Cm5/10005. : 7.5	CONTROL LEVED
<del></del>	CONTROL LEVER
†	
+	control lever
Rated speed rpm : 500 +	position degree : 102.0
	tolerance degree : +- 4.0
Rack travel in mm: 5.60	rotor arise dogrees
11077	DATEN COFFN
	RATED SPEED
Del. quantity +	rack travel mm : 8.90
cm3/1000 strokes : 25.0 +	Rated speed rpm : 1165
Tolerance +	Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0 +	
Check tolerance	rack travel mm : 6.00
	Rated speed rpm : 1230
Spreed	Tolerance 1/min : +- 5
Tolerance +	
cm3/1000 strokes : 3.5 +	rack travel mm : 1.00
Check tolerance	Tolerance mm : +- 0.70
cm3/1000s. : 5.5	Rated speed rpm : 1400
T	Nated speed (pill : 1400
T	rack travel mm : 6.00
(2) 000000000000000000000000000000000000	
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1230
WITH GOVERNOR +	
+	
+	
GUIDE SLEEVE POSITION	LOW IDLE
$\Gamma$	
T T	control lever
control lever	
position degree : -3 +	position degree : 88.0
Rated speed rpm : 800 +	tolerance degree : +- 4.0
+	
Rack travel in mm: 0.50	Control lever difference
Tolerance mm : +- 0.20	Grad : 14.0
10501 GHIQU IIIII	tolerance degree : +- 4.0
T	totel diffe degliee . The 4.0
governor spring +	0.442
pre-tension +	Setting point w/out bumper spring
click setting x : 3.50 +	
<del>-</del>	Rated speed rpm : 500
,	· · · · · · · · · · · · · · · · · · ·

rack travel mm Tolerance mm	: +-	5.10 0.10

### Testing:

Rated speed rpm	:	500
rack travel mm	:	5.60
Tolerance mm	: +	- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm	:	1	100
rack travel mm	:		9.95
Tolerance mm	:	+-	0.05

Rated speed rpm : 750 rack travel mm : 10.60 : +- 0.10 Tolerance mm

### Start interlock

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 750 Del. quantity cm3/1000 strokes : 122.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance

: +- 5.0

cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 9.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100 20.50 rack travel mm Tolerance mm : +- 1.00 Del. quantity cm3/1000 strokes : 177.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s.: +- 13.0

#### LOW IDLE

Rated speed rpm Del. quantity	:	500	
cm3/1000 strokes Tolerance	:	25.0	
cm3/1000 strokes Check tolerance	: +-	2.0	
cm3/1000s. Spreed	: +-	4.5	
Tolerance cm3/1000 strokes	•	3.5	
Check tolerance cm3/1000s.	•	5.5	
(1107 10005,	•	ر. ر	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.12.96 : 51.12.90 : ISO 4113

Combination No. : 0 403 466 176

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 406 237

Governor

Governer design. : RSV500...1100MW2A402

Governer no. : 0 420 085 292

Cust. part No. : 3931934

Customer-spec. information

Customer : CDC Motor

Power KW

: 6 CT : 127.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

**K07** 

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80

: +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.00

Tolerance

: +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference \* CS : 2.00

BASIC SETTING

Rated speed rom : 1100 +	
Rated speed rpm : 1100	FIRE LOAD DELTHEDY AT FIRE LOAD CTOD
Rack travel in mm: 10.25	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance mm : +- 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity	hPa : -
cm3/1000 strokes : 123.0	Del. quantity cm3/1000 strokes : 123.0
Tolerance	Tolerance
cm3/1000 strokes : +- 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0
cm3/1000s. : + 4.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance	cm3/1000s. : 7.5
cm3/1000 strokes : 4.0	
Check tolerance	
cm3/1000s. : 7.5	CONTROL LEVER
	control lever
Rated speed rpm : 500 +	position degree : 110.0 tolerance degree : + 4.0
	•
Rack travel in mm: 5.30	RATED SPEED
Tolerance mm : + 0.10 + Del. quantity +	rack travel mm : 9.25 Rated speed rpm : 1170
cm3/1000 strokes : 29.0	Rated speed rpm : 1170 Tolerance 1/min : + 5
Tolerance +	5.00
cm3/1000 strokes : - 2.0 + Check tolerance	rack travel mm : 5.80 Rated speed rpm : 1230
cm3/1000s. : + 4.5	Rated speed rpm : 1230 Tolerance 1/min : +- 5
Spreed	
Tolerance	rack travel mm : 1.00
cm3/1000 strokes : 3.5	Tolerance mm : + 0.70
Check tolerance + cm3/1000s. : 5.5	Rated speed rpm : 1350
Cm5/10005. : 3.3	rack travel mm : 5.80
+	Rated speed rpm : 1230
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
‡	
CUIDE SUFFICE POSITION	LOW IDLE
GUIDE SLEEVE POSITION	
+	control lever
control lever	position degree : 88.0
position degree : -3 + Rated speed rpm : 800 +	tolerance degree : + 4.0
Post during in the Co. C. EO.	Control lever difference
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	Grad : 22.0 tolerance degree : +- 6.0
governor spring	Setting point w/out bumper spring
pre-tension +	
click setting x : 5.50 +	Rated speed rpm : 500

KO8

rack travel mm	:	4.80
Tolerance mm	: +-	0.10

### Testing:

Rated speed rpm 500 rack travel mm 5.30 : + 0.10Tolerance mm

Rated speed rpm 100

: > 19.00 CRT mm min.

### TORQUE CONTROL

: 1100 Rated speed rpm 10.25 rack travel mm Tolerance mm : **←** 0.05

: 1000 Rated speed rpm rack travel mm : 10.60 : ← 0.10 Tolerance mm

Rated speed rpm 750 rack travel mm 10.60 Tolerance mm : **←** 0.20

### Start interlock

#### FUEL DELIVERY CHARACTERISTICS

### Aneroid pressure

hPa : 1000 Rated speed rpm Del. quantity cm3/1000 strokes : 127.0 Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : +- 5.0

Spreed

Tolerance

cm3/1000 strokes : 6.0 Check tolerance

cm3/1000s. 9.0

#### STARTING FUEL DELIVERY

100 Rated speed rpm 20.50 rack travel mm : +- 1.00 Tolerance mm Del. quantity cm3/1000 strokes : 177.0 Tolerance cm3/1000 strokes : + 10.0Check tolerance cm3/1000s.

LOW IDLE

Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 29.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. 5.5

: +~ 13.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 19,12,96 Edition Test oil : ISO 4113

Combination No. : 0 402 646 669

Injection pump

Pump designation : PE6P130A720RS7197 EP type number : 0 412 636 815

Governor

Governer design. : RQV425...975PA1292

Governer no. : 0 421 814 184

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE : 8215.42.985 Motor

Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : : + 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 : +- 1.5 Tolerance bar

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : + 1.0

: 5.05 Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : **←** 0.30

Check

tolerance "NW : +- 0.50

Start of delivery mark

tolerance \*NW : + 0.40

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm: 13.45

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 257.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

K10

	+	Tolerance mm : +- 0.25
Check tolerance cm3/1000s.	: +- 4.0	Rated speed rpm : 1220 guide sleeve
Spreed		travel mm : 11.50 Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes	: 5.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s.	: 8.0	control lever
Pated aread are		position degree : - 1 Rated speed rpm : 1125
Rated speed rpm	. +	Rack travel in mm : 10.00
Rack travel in mm Tolerance mm Del. quantity	: + 5.60 : + 0.10	Tolerance mm : ← 2.70
cm3/1000 strokes Tolerance	: 22.0	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes Check tolerance	: + 3.0	Rated speed rpm : 975 Aneroid pressure
cm3/1000s. Spreed	: ← 7.0	hPa : 900 Del. quantity
Tolerance cm3/1000 strokes	: 8.0	cm3/1000 strokes : 257.0 Tolerance
Check tolerance	+	cm3/1000 strokes : → 1.0
cm3/1000s.	: 12.0	Check tolerance cm3/1000s. : + 4.0
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP	Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
GUIDE SLEEVE TRAV	EL	cm3/1000s. : 8.0
Rated speed rpm	: 1034	CONTROL LEVER
travel mm	: 7.23	
Tolerance mm	: ← 0.15	control lever position degree : 119.0
Rated speed rpm guide sleeve	: 425	tolerance degree : +- 4.0
travel mm Tolerance mm	: + 2.40 : + 0.20	RATED SPEED rack travel mm : 12.40 Rated speed rpm : 1020
Rated speed rpm guide sleeve	: 860	Tolerance 1/min : + 5
travel mm Tolerance mm	: 5.34 : + 0.25	rack travel mm : 4.00 Rated speed rpm : 1080 Tolerance 1/min : + 15
Rated speed rpm guide sleeve	: 580	rack travel mm : 0.50
travel mm Tolerance mm	: - 3.68 : - 0.25	Tolerance mm : + 0.50 Rated speed rpm : 1350
Rated speed rpm guide sleeve	: 1139	
travel mm	: 10.00	

### LOW IDLE

control lever 94.0 position degree : tolerance degree : +-4.0

Testing:

425 Rated speed rpm rack travel mm 5.00 Tolerance mm : + 0.10

Rated speed rpm 325

CRT men min. : > 6.50

Rated speed rpm 470

### TORQUE CONTROL

975 Rated speed rpm rack travel mm 13.45 Tolerance mm : + 0.05

Rated speed rpm 550 13.50 rack travel mm : : + 0.10Tolerance mm

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

500 Rated speed rpm 900 Pressure hra : 13.50 rack travel mm : Tolerance mm : + 0.10

Pressure hPa 500 Rated speed rpm 10.90 rack travel mm : + 0.20 Tolerance mm

### MEASUREMENT

500 Rated speed rom

470 Pressure hPa • rack travel mm 11.50 : +- 0.20 Tolerance mm

Pressure hPa 550 : rack travel mm 12.75 Tolerance mm : +- 0.05

#### Start interlock

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

900 hPa 550 Rated speed rpm Del. quantity

cm3/1000 strokes : 267.0

Tolerance

cm3/1000 strokes : + 4.0Check tolerance cm3/1000s. : + 7.0

Aneroid pressure

Rated speed rpm 500 Del. quantity cm3/1000 strokes : 181.0 Tolerance cm3/1000 strokes : +-

Check tolerance cm3/1000s. 4.0

### STARTING FUEL DELIVERY

100 Rated speed rpm : Del. quantity

cm3/1000 strokes : 270.0 Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance cm3/1000s.

: +- 24.0

### LOW IDLE

Rated speed rpm : 425 Del. quantity

cm3/1000 strokes : 22.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. : +-7.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

12.0

Check tolerance cm3/1000s. :

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.01.97 Test oil : ISO 4113

Combination No. : 0 402 646 909

Injection pump

Pump designation : PE6P120A320RS7138

7

EP type number : 0 412 626 923

Governor

Governer design. : RQV200...1100PA712

Governer no. : 0 421 813 951

Cust. part No. : 1318819

Customer—spec. information Customer : SCANIA Motor : DSC907

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C :  $\leftarrow$  2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

**üheck** 

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : + 0.30

Check

tolerance \*NW : + 0.50

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 12.15
Tolerance mm: + 0.05

Del. quantity	+ Tolerance
cm3/1000 strokes : 159.0	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
Tolerance	+ cm3/1000s. : +- 4.0
cm3/1000 strokes : +- 1.0	Spreed
	+ Tolerance
Check tolerance	+ cm3/1000 strokes : 8.0
cm3/1000s. : +- 4.0	+ Check tolerance
	+ cm3/1000s. : 12.0
Spreed	+
	+
Tolerance	
cm3/1000 strokes : 8.0	+ CONTROL LEVER
	+
Check tolerance	+ control lever
cm3/1000s. : 12.0	position degree : 60.0
	+ tolerance degree : +- 4.0
	+
	+ control lever
Rated speed rpm : 250	position degree : 120.0
	tolerance degree : + 4.0
Rack travel in mm: 5.00	+
Tolerance mm : + 0.10	+ RATED SPEED
Del. quantity	+ rack travel mm : 11.15
cm3/1000 strokes : 16.0	Rated speed rpm : 1145
Tolerance	+ Tolerance 1/min : + 5
cm3/1000 strokes : + 3.0	+ Check
Check tolerance	+ speed 1/min : + 10
cm3/1000s. : +- 6.0	
Spreed	rack travel mm : 4.00
Tolerance	Rated speed rpm : 1285
cm3/1000 strokes : 4.0	Tolerance 1/min : +- 15
Check tolerance	T Check
cm3/1000s. : 8.0	speed 1/min : + 20
CH3/10003 0.0	I speed //mill
	rack travel mm : 0.50
(B) SETTING OF INJECTION PUMP	Tolerance mm : ← 0.50
WITH GOVERNOR	Rated speed rpm : 1400
HILL GOACUAOK	I have speed (pill : 1405
	I
	I
GUIDE SLEEVE POSITION	I
SOINE SPEEAE LOSTITUIA	LOW IDLE
	I LOW INCL
control lever	I
position degree : - 1	T control lever
Rated speed rpm : 1130	position degree : 64.0
rated speed this : (130)	
Rack travel in mm : 16.50	tolerance degree : +- 4.0
	t control lever
Tolerance mm : +- 1.30	
CHILL LOAD DELTURDY AT FIRE LOAD CTOD	tolerance degree : +- 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing
Detect speed speed 4 700	Testing:
Rated speed rpm : 700	T Detect aread 250
Aneroid pressure	+ Rated speed rpm : 250
hPa : 1500	rack travel mm : 5.00
Del. quantity	Tolerance mm : + 0.10
cm3/1000 strokes : 159.0	T Debut and the ASS
	+ Rated speed rpm : 150

CRT me min. : > 6.50

250 Rated speed rpm

TORQUE CONTROL

Rated speed rpm 700 rack travel mm 12.15 Tolerance mm : +- 0.05

: 1100 Rated speed rpm rack travel mm 12.15 Tolerance mm : **←** 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rom 500 Pressure hPa 1500 rack travel mm 12.15 Tolerance mm : +- 0.05

Pressure hPa 500 Rated speed rpm rack travel mm 10.30 Tolerance mm : **←** 0.20

MEASUREMENT

Rated speed rpm 500

Pressure hPa 220 10.75 rack travel mm Tolerance mm : +- 0.15

350 Pressure hPa 11.55 rack travel mm Tolerance mm : +- 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1500 hPa Rated speed rpm 1100

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : +-4.0

Check tolerance

cm3/1000s.: +-6.0 Aneroid pressure

hPa 500 Rated speed rpm

Del. quantity cm3/1000 strokes : 116.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : +-4.0

STARTING FUEL DELIVERY

100 Rated speed rpm 10.30 rack travel and : +- 0.20 Tolerance mm

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +- 24.0

LOW IDLE

Rated speed rpm 250

Del. quantity cm3/1000 strokes : 16.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. : +-6.0

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 8.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 08.01.97 Edition Test oil : US.UT.97

Combination No. : 0 402 746 630

Injection pump

Pump designation : PES6P130A720LS7422 **EP type number** : 0 412 736 809

Governor

Governer design. : RQV300...900PA1336 Governer no. : 0 421 814 191

Cust. part No. :

Customer-spec. information Customer : IVECO-AIFO : 8217 SRI 10.00 Motor

Power KW : 265.0

### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Overflow quantity

min. L/h : 200 Tolerance L/h : +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05 Check tolerance mm : + 0.10

Rack travel in mm : 12.00

Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing Tolerance

: +- 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

Check

tolerance \*NW : **←** 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.05

Tolerance mm	: <del></del>	guide sleeve	_
Nal marakla		travel mm : 3.6	
Del. quantity	. 2/5 2	Tolerance mm : + 0.2	•
m3/1000 strokes	: 245.0	Detail speed 4000	
Talanna		Rated speed rpm : 1220	
Tolerance	: +- 1.5	guide sleeve	_
cm3/1000 strokes	; +- 1,5	travel mm : 11.50 Tolerance mm : + 0.50	
heck tolerance		Tolerance mm : $\leftarrow$ 0.50	J
	: <del>+</del> 5.0		
	; 5.0	ENIL LOAD DELTHERY AT ENIL	OAD CTOD
Spreed		FULL LOAD DELIVERY AT FULL	LUAD STOP
opreed	]	Rated speed rpm : 900	
olerance	]	Aneroid pressure	
m3/1000 strokes	: 6.0	· hPa : 1200	
MUTTURES	. 0.0	Del. quantity	
heck tolerance	-	· cm3/1000 strokes : 245.0	า
m3/1000s.	: 10.0	Tolerance	,
m3/10003,	: 10.0	- cm3/1000 strokes : +- 1.	5
	***************************************	Check tolerance	,
	í		n
	. 700		J
lated speed rpm	: 300	Spreed	
hab desirat da a-		Tolerance	n
ack travel in mm		- cm3/1000 strokes : 6.0	J
olerance mm	: <b>←</b> 0.10	Check tolerance	n
el. quantity	. 22.0	- cm3/1000s. : 10.0	J
m3/1000 strokes	: 22.0	•	
olerance		•	
	: <del>←</del> 3.0	AANTAAL A SUSS	
heck tolerance		CONTROL LEVER	
m3/1000s.	: +- 7.0		
preed	+	control lever	_
olerance	1	position degree : 120.0	_
	: 10.0	tolerance degree : +- 4.0	D .
heck tolerance	+		
m3/1000s.	: 14.0	- RATED SPEED	_
	1	- rack travel mm : 11.0	ס
	4	Rated speed rpm : 945	_
B) SETTING OF INJ	ECTION PUMP	Tolerance 1/min : +	5
IITH GOVERNOR	4	Check	_
	+	- speed 1/min : + 1	0
	-		_
UIDE SLEEVE TRAVE	L	rack travel mm : 4.0	D
	1	Rated speed rpm : 1035	_
	: 959	Tolerance 1/min : + 1	5
uide sleeve	■ <del> </del>	Check	_
ravel mm	: 7.98	speed $1/\min$ : $+-$ 20	D
olerance mm	: +- 0.15	•	
	4	rack travel mm : 0.5	
ated speed rpm	: 300	Tolerance mm : + 0.5	D
uide sleeve	-	- Rated speed rpm : 1200	
ravel mm	: 1.17	•	
olerance mm	: +- 0.20 -	•	
	1		
		•	
lated speed rom	: 766		
	: 766	- LOW IDLE	
ruide sleeve	-	LOW IDLE	
uide sleeve ravel mm	: 5.97	LOW IDLE	
Rated speed rpm guide sleeve travel mm Tolerance mm	-	•	
guide sleeve cravel mm folerance mm	: 5.97	LOW IDLE  control lever  position degree : 79.	0

K18

tolerance degree	: +- 4.0	† Aneroid pres	sure
Toobing		+ hPa	: 1200 rpm : 550
Testing:		+ Del. quantit	rpm : 33U
Rated speed rpm	. 300	I cm3/1000 str	okes : 256.0
rack travel ma	4.60	Tolerance	okes . 250.0
rack travel mm Tolerance mm	: + 0.10		okes : +- 3.5
		- Check tolera	
Rated speed rpm	: 200		: + 7.0
		+	
CRT mm min.	: > 6.05	+ Aneroid pres	sure
	<b></b>	† hPa	: -
Rated speed rpm	: 365	+ Rated speed	rpm : 550
		+ Del. quantit	y
TAROUS ACCITON			okes : 172.5
TORQUE CONTROL		Tolerance	okes : +- 1.5
Rated speed rpm	• 200	Check tolera	
rack traval ma	12.05		: +- 5.0
rack travel mm Tolerance mm	: + 0.05	I (mb) (0003.	5.0
10tel alife inti		Ţ	
Rated speed rpm rack travel mm Tolerance mm	: 550	<u> </u>	
rack travel mm	: 12.10	+ STARTING FUE	L DELIVERY
Tolerance mm	: <b>←</b> 0.10	+	
			rpm : 100
	e description of description of description of description of the description of description of description of the description of description of the description of t	+ Del. quantit	У
ANEROID/ALTITUDE			okes : 155.0
COMPENSATOR TEST		+ Tolerance	45.0
			okes : + 15.0
SETTING		t Check tolera	: + 19.0
2E1 1 TIAO		I cais/1000s.	: +- 17.0
Rated speed rpm	: 550	1	
Pressure hPa	: 1200	+	
rack travel mm	: 12.05	+	**************************************
Tolerance mm	: <b>←</b> 0.05	+ LOW IDLE	
		+	700
Pressure hPa		+ Rated speed	
Rated speed rpm	: 550	Del. quantit	
rack travel mm Tolerance mm	; 7.70 · + 0.10	cm3/1000 str	ores : 22.0
TOLET CHILE IMIT	. +- 0.10	T 10terance	okes : + 3.0
MEASUREMENT		Check tolera	
i ighwytteriel Ti		- cm3/1000s	: +- 7.0
Rated speed rpm	: 550	Spreed	
		Tolerance	
Pressure hPa	: 420	+ cm3/1000 str	okes : 10.0
rack travel mm	: 10.30	+ Check tolers	nce
Tolerance mm		+ cm3/1000s.	: 14.0
		†	
Pressure hPa rack travel mm Tolerance mm	: 45U	†	
rack travel mm	: 10.65 0.05	T	···
ioretauce um	; U.U	I	
Start interlock		I Find of test	specification sheet
otal t lifter tock		I had test	specificación succt
		1	

FUEL DELIVERY CHARACTERISTICS

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15,01,97 Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump Pump designation : EP type number :

Governor

Governer design. : Governer no.

Cust. part No. : 3283833

Customer-spec. information Customer : CUMMINS

Motor : 6BTA-160/1900

Power KW : 119.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : ÷- 1.0

Prestroke mm : 2.85 : **←** 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance : + 9.10

Check

tolerance \*NW : + 0.29

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 950

Rack travel in mm: 13.30 Tolerance mm

Del. quantity cm3/1000 strokes : 119.4

K20

Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: <b>←</b> 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5
Rated speed rpm	: 475
Rack travel in mm	: 5.90
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 23.5
Tolerance cm3/1000 strokes	: ← 2.0
Check tolerance cm3/1000s.	: 4.5
Spreed	T T T T T T T T T T T T T T T T T T T
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR  GUIDE SLEEVE POSIT	
control lever position degree Rated speed rpm	: FREE : 800
Rack travel in mm Tolerance mm	: 0.50 : ← 0.20
governor spring pre-tension click setting x	: 2.00
FULL LOAD DELIVERY	Y AT FULL LOAD STOP
Rated speed rpm	
	: 950
Aneroid pressure hPa	: 950 : 850
Aneroid pressure hPa Del. quantity cm3/1000 strokes	

Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: +- 1.0 : +- 3.0
Tolerance cm3/1000 strokes Check tolerance	: 4.0
cm3/1000s,	: 6.5
CONTROL LEVER	
control lever position degree tolerance degree	
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 12.30 : 1000 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1075 : ← 5
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1200
rack travel mm Rated speed rpm	: 4.00 : 1075
LOW IDLE	
FOM INFE	
control lever position degree	: 76.0

control lever
position degree : 76.0
tolerance degree : +- 4.0

Control lever difference

Grad : 15.0 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475 rack travel mm : 5.90 Tolerance mm : + 0.10

rack travel mm : Rated speed rpm : 2.00 Tolerance 1/min : +-30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 950 rack travel mm : 13.30 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 Pressure hPa 850

Pressure hPa 500 Rated speed rpm rack travel mm : 9.90 : + 0.10 Tolerance mm

MEASUREMENT

Rated speed rpm : 500

: 550 Pressure hPa rack travel mm : 12.50 : - 0.20 Tolerance mm

Pressure hPa : 350 rack travel mm : 11.45 Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 500

Del. quantity cm3/1000 strokes : 75.6

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 3.0 STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 : **←** 0.50 Tolerance mm Del. quantity

cm3/1000 strokes : 122.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : ← 15.0

LOW IDLE

Rated speed rpm : 475

Del. quantity

cm3/1000 strokes : 23.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

: +- 4.5 cm3/1000s. Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 14.01.97 Test oil : ISO 4113

Combination No. : 0 402 798 804

Injection pump

Pump designation : PES8P120A920/4LS7392

EP type number : 0 412 728 813

Governor

Governer design. : RE30

Governer no. : 0 421 890 034

Cust. part No. : 313 GC 5209P2

Customer-spec. information Customer : MACK Motor : EA9-600 Power KW : 447.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar : **←** 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85 : +- 0.05 Tolerance mm Check tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 0.20

Firing order : 1-2-7-8-4 : - 6- 3

: 0-45-90-135-180 Phasing

: -270-315 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

: +- 0.50 Tolerance Check : + - 0.75

tolerance \*NW

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR **POSITION** 

Engine speed min-1:

Setting point (P, R and H pump)

Mact V 3,100 CRT mm 13,00 : +/- 0.05 Tolerance mm

Check

: +/- 0.10 tolerance mm

Check value (P, R and H pump)

1.700 Uact V 6.15 CRT mm : +/- 0.25 Tolerance mm

Check

: +/- 0.30 tolerance mm

Setting point (amua M)

3,100 Uact V CRT mm 12.50 : +/- 0.05 Tolerance mm Check

: +/- 0.10 tolerance mm

Check value (amua M)

1.700 Uact V 5.50 CRT mm : +/- 0.25 Tolerance mm

Check

: +/- 0.30 tolerance mm

Stop position

: Value with Uact V

deenergised adjusting magnet and control rod in

stop position.

CRT mm 0.75 : +/- 0.25 Tolerance mm

Check

: +/- 0.35tolerance mm

ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60 Amolitude V 1.4 : +/- 0.6 Tolerance V Check

: +/- 1.20 tolerance V

Engine speed min-1: 600

Difference Amplitude to

Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

900 Rated speed rpm : Uact V 2.950

Del. quantity

cm3/1000 strokes : 303.0

Tolerance

cm3/1000 strokes : + 1.0 Check tolerance

cm3/1000s. : +-4.0

Spreed

Tolerance

cm3/1000 strokes : 7.0

Check tolerance

cm3/1000s. 11.0

FUEL DELIVERY CHARACTERISTICS

625 Rated speed rom Uact V 2.880

Del. quantity

cm3/1000 strokes : 339.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  5.0

Check tolerance

cm3/1000s. 8.0 : +-

Spreed

Tolerance

cm3/1000 strokes : 12.0

Check tolerance

cm3/1000s.16.0

TEST POINT L1

325 Rated speed rpm 1.340 Uact V : + 0.060Tolerance Volt

Check tolerance

: +- 0.070Volt

Del. quantity

cm3/1000 strokes : 27.0

Tolerance cm3/1000 strokes Spreed	: +-	3.0
Tolerance um3/2000 strokes	:	0.3
Check tolerance cm3/1000s.	:	12.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	185.0
Tolerance		
cm3/1000 strokes	: +-	15.0
Check tolerance		
cm3/1000S.	: +-	20.0
Spreed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance		
cm3/1000s.	:	45.0
		_

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 14.01.97 Edition Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 896 310

Injection pump

Pump designation : PES6P130A320RS8522

EP type number : 0 412 936 201

Governor

Governer design. : RE30

Governer no. : 0 421 890 033

Cust. part No. : 309 4435

Customer-spec. information Customer : CUMMINS

Motor : V30 : 1007.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0 x inside diameter: 3.0 x Length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.30 Tolerance mm : ← 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm : 12.00 Tolerance mm : + 0.20

Firing order : 1-5-3-6-2-

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 25.00 Tolerance

Check

: +- 0.50

tolerance \*NW

: +- 0.75

Barrel no.

: 1

Beginning of delivery differende

and maximum rack

: 10.00 travel

K26

Tolerance mm : + 1.50 Difference °CS : 6.00 (B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 VTESTING & SETTING RACK TRAVEL SENSOR POSITION Engine speed min-1: Setting point (P, R and H pump) 3.100 Uact V 13.00 CRT mm : +/- 0.05 Tolerance mm Check tolerance mm : +/- 0.10 Check value (P, R and H pump) : 1.700 Uact V CRT mm 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : +/- 0.30 Setting point (M pump) 3,100 Uact V : 12.50 CRT mm : +/- 0.05 Tolerance mm Check : +/- 0.10 tolerance mm Check value (amua M) 1.700 Uact V CRT mm 5.50 : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Stop position : Value with Uact V deenergised adjusting magnet and control rod in

stop position.

: 0.75 CRT mm : +/- 0.25 Tolerance mm Check tolerance mm : +/- 0.35 ENGINE-SPEED SENSOR (All P and R pumps not H and M numps) Test with control rod in stop position Engine speed min-1: 60 Amplitude V : 1.4
Tolerance V : +/- 0.6 Check : +/- 1.20 tolerance V Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm 900 Uact V 3.050 Del. quantity cm3/1000 strokes : 425.5 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance cm3/1000s. 14.0 FUEL DELIVERY CHARACTERISTICS Rated speed rpm 750 Uact V 3.000 Del. quantity cm3/1000 strokes : 434.0 Tolerance cm3/1000 strokes : + 10.0 Check tolerance cm3/1000s. : +- 12.0 Spreed Tolerance

cm3/1000 strokes :

Check tolerance

cm3/1000s.

16.0

18.0

## TEST POINT L1

Rated speed rpm	:		400
Uact V	:		1.280
Tolerance Volt	:	+-	0.060
Check tolerance			
Volt	:	+-	0.070
Del. quantity			
cm3/1000 strokes	:		49.0
Toleranse			
cm3/1000 strokes	:	+-	3.0
Spreed			
Tolerance			
cm3/1000 strokes	:		8.0
Check tolerance			
cm3/1000s.	:		14.0

# STARTING FUEL DELIVERY

Rated speed rpm Uact V	: 100 : 4.700	
Del. quantity cm3/1000 strokes Tolerance	: 260.0	
cm3/1000 strokes Check tolerance	: 19.0	
cm3/1000s. Spreed	: <b>←</b> 22.0	
Tolerance cm3/1000 strokes	: 40.0	
Check tolerance cm3/1000s.	: 50.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.01.97 Edition Test oil : ISO 4113

Combination No. : F 002 A0Z 008

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1050A00882R

Governer no. : F 002 A20 208

Cust. part No. : 3928598

Customer-spec. information Customer : CDC : 6BTA Motor Power KW : 124.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing Phasing Tolerance

: +- 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50 : **←** 0.50 Tolerance

: + 0.75 tolerance "NW

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1035

Rack travel in mm: 13.00 Tolerance mm :  $\leftarrow$  0.05

L01

•	
Del. quantity	- Aneroid pressure - hPa : 1200
cm3/1000 strokes : 112.5	- Del. quantity
Tolerance	- cm3/1000 strokes : 112.5 - Tolerance
cm3/1000 strokes : +- 1.0	- cm3/1000 strokes : +- 1.0 - Check tolerance
Check tolerance : +- 3.0 -	- cm3/1000s. : + 3.0 - Spreed - Tolerance
Spreed	- roterance - cm3/1000 strokes : 3.5 - Check tolerance
Tolerance - 3.5 -	- cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	- CONTROL LEVER
**************************************	control lever
	- position degree : 96.0
Rated speed rpm : 500 -	tolerance degree : +- 4.0
Rack travel in mm: 5.50	RATED SPEED
Tolerance mm : +- 0.10	rack travel mm : 12.00
Del. quantity	- Rated speed rpm : 1095
cm3/1000 strokes : 20.5	Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0	rack travel mm : 6.40
Check tolerance	- Rated speed rpm : 1150
cm3/1000s. : + 4.5	Tolerance 1/min : + 5
Spreed - Tolerance -	rack travel mm : 0.85
cm3/1000 strokes : 3.5	F Tolerance mm : +- 0.55
Check tolerance	Rated speed rpm : 1250
cm3/1000s. : 5.5	
]	rack travel mm : 6.40 Rated speed rpm : 1150
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rated speed rpm . 1750
	- LOW IDLE
GUIDE SLEEVE POSITION	- LOW IDEE
]	control lever
control lever	position degree : 79.0
position degree : -3	tolerance degree : +- 4.0
Rated speed rpm : 800 -	- Control lever difference
Rack travel in mm: 0.50	- Grad : 17.0
Tolerance mm : + 0.20	tolerance degree : + 6.0
governor spring	Setting point w/out bumper spring
pre-tension - click setting x : 3.00 -	Rated speed rpm : 500
teren secting A i Oito	rack travel mm : 5.00
	- Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Footions
Rated speed rpm : 1035	Testing:

L02

Rated speed rpm : 500 rack travel mm : 5.50 Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1035 rack travel mm : 13.00 Tolerance mm : + 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 Pressure hPa : 1200

Pressure hPa : Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 780 rack travel mm : 12.50 Tolerance mm : + 0.20

Pressure hPa : 590 rack travel mm : 11.90 Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity

cm3/1000 strokes : 95.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 roierance mm : + 0.50

Del. quantity

cm3/1000 strokes : 120.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. :  $\leftarrow$  15.0

LOW IDLE

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 20.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5 Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.01.97 Edition Test oil : ISO 4113

Combination No. : F 002 A0Z 022

Injection pump

Pump designation : PES6A95D320/3RS2881 EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1000A0c894R

Governer no. : F 002 A20 216

Cust. part No. : 3931278

Customer-spec. information Customer : CDC Motor : SBT Power KW : 102.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

: 2.85 : + 0.05 Prestroke mm Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm:  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 12.15

Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 102.5
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : + 3.0
Spreed
Tolerance cm3/1000 strokes : 3.5
Check tolerance cm3/1000s. : 6.0
Nation ration administration relation of a state of a simple relation and a simple relation relation and a simple relation and a sim
Rated speed rpm : 475
Rack travel in mm : 5.60 Tolerance mm : ÷- 0.10
Del. quantity
cm3/1000 strokes : 21.5
Tolerance cm3/1000 strokes : +- 2.0
Check tolerance
cm3/1000s. : +- 4.5
Spreed
Tolerance cm3/1000 strokes : 3.5
Check tolerance
cm3/1000s. : 5.5
(B) SETTING OF INJECTION PUMP WITH GOVERNOR
GUIDE SLEEVE POSITION
control lever position degree : - 3 Rated speed rpm : 800
Rack travel in mm: 0.50 Tolerance mm: + 0.20
<pre>governor spring pre-tension click setting x : 4.00</pre>
FULL LOAD DELIVERY AT FULL LOAD STOP
Rated speed rpm : 1000

Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1000 : 102.5 : + 1.0 : + 3.0 : 3.5 : 6.0
CONTROL LEVER	
control lever position degree tolerance degree	: 97.0 : ← 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.10 : 1070 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 7.00 : 1120 : + 5
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : + 0.55 : 1300
rack travel mm Rated speed rpm	: 7.00 : 1120
LOW IDLE	
control lever position degree tolerance degree	: 80.0 : + 4.0
Control lever dif Grad tolerance degree	: 16.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 1000

L05

Rated speed rpm rack travel mm Tolerance mm Rated speed rpm CRT mm min.	: 475 : 5.60 : + 0.10 : 100 : > 19.00
TORQUE CONTROL  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm	: 1000 : 12.15 : ← 0.05 : 800 : 12.88 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa	: 500 : 1000
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: -
Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm	: 500 : 750 : 13.00 : +- 0.20 : 480 : 12.20
Tolerance mm  Start interlock  FUEL DELIVERY CHA	: <b>←</b> 0.20
Anercid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000 : 800 : 113.0

Check tolerance cm3/1000s.	: +-	4.0	
Aneroid pressure			
hPa Rated speed rpm	:	500	
Del. quantity		טטט	
cm3/1000 strokes	:	93.0	
Tolerance	•		
cm3/1000 strokes	: +-	1.0	
Check tolerance			
cm3/1000s.	: -	3.0	
			 _
STARTING FUEL DEL	.IVERY		
Rated speed rpm	:	100	
rack travel mm	:	20.50	
Tolerance mm	: +-	0.50	
Del. quantity			
cm3/1000 strokes	:	120.5	
Tolerance		40.0	
cm3/1000 strokes	: +-	10.0	
Check tolerance cm3/1000s.	: +-	15.0	
LOW IDLE	·		
Rated speed rpm	:	475	
Del. quantity	-		
cm3/1000 strokes	:	21.5	
Tolerance			
cm3/1000 strokes	: +-	2.0	
Check tolerance cm3/1000s. Spreed	: +-	4.5	
Tolerance			
cm3/1000 strokes	:	3.5	
Check tolerance cm3/1000s.	:	5.5	
	-		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 14.01.97 Test oil : ISO 4113

Combination No. : 0 400 074 899

Injection pump

Pump designation : PES4M55C32ORS167 EP type number : 0 410 054 960

Governor

Governer design. : RSF375/1700M69-4 Governer no. : 0 420 021 139

Cust. part No. :

Customer-spec. information Customer : MB-NF7.
Motor : 0M601-2.3L Power KW : 49.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C 40 Tolerance \*C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde assembly : 1 688 901 111

Opening pressure

: 148.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.05 Tolerance mm : + G.05 Check

tolerance mm : **←** 0.10

Rack travel in mm : 21.00 Tolerance mm : +- 1.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 15.50 Tolerance  $: \leftarrow 0.20$ 

Check

tolerance \*NW : +- 0.30

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 37.5

Tolerance

cm3/1000 strokes : +- 0.5

Check tolerance : +- 1.5 cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 2.5

Charle Astronomy	
Check tolerance cm3/1000s. : 3.0	SET IDLE CONTROL LEVER POSITION
Rated speed rpm : 375	Rated speed rpm : 1000
Rack travel in mm: 5.60 Tolerance mm: + 0.10 Del. quantity	CRT mm max. : 1.45
cm3/1000 strokes : 6.5 Tolerance	LOW IDLE
cm3/1000 strokes : + 0.5 Spreed	control lever
Tolerance cm3/1000 strokes : 1.0	position degree : 14.0 tolerance degree : + 2.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.60
IDLE STAGE	SET IDLE AUXILIARY SPRING
Rack travel in mm: 6.25 Tolerance mm: + 0.25	Rated speed rpm: : 420 rack travel mm : 4.50 Tolerance mm : + 0.10
t	rack travel mm : 3.00 Rated speed rpm : 630
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance 1/min : +- 50
Rated speed rpm : 1000 Ref. pressure	Load pick-up
ALDA / ADA hPa : 1100 Del. quantity	Rated speed rpm : 250 rack travel mm : > 10.20
cm3/1000 strokes : 37.5 Tolerance	Rated speed rpm : 1000
cm3/1000 strokes : + 0.5 Check tolerance	CRT mm max. : 1.45
cm3/1000s. : +- 1.5 +- Tolerance	rack travel mm : 5.60 Rated speed rpm : 375
cm3/1000 strokes : 2.5 Check tolerance	·
Check tolerance cm3/1000s. : 3.0	TORQUE CONTROL
RATED SPEED	Rated speed rpm : 1000 rack travel mm : 12.35 Tolerance mm : + 0.05
control lever position degree : 50.0	Rated speed rpm : 1400 rack travel mm : 12.10 Tolerance mm : + 0.15
Rated speed rpm : 1800 + rack travel mm : 9.25 + Tolerance mm : + 0.25	
+	Rated speed rpm : 1650 rack travel mm : 11.85 Tolerance mm : +- 0.15
Rated speed rpm : 2300 + rack travel mm : 0.50 + Tolerance mm : + 0.50	Tolerance mm : +- 0.15  Rated speed rpm : 500
	rack travel mm : 11.75

Tolerance mm	: <b>←</b> 0.15	Ref. pressure
ADJUSTMENT TEST A	ADA/ALDA	+ ALDA / ADA hPa : 1100 + Rated speed rpm : 500 + Del. quantity
SETTING		cm3/1000 strokes : 33.3
Rated speed rpm Ref. pressure		cm3/1000 strokes : + 0.8 Check tolerance
ALDA / ADA hPa rack travel mm	: 950 : -0.10	+ cm3/1000s. : + 1.8 + Tolerance
Tolerance mm	: +- 0.10	cm2/1000 strokes : 2.5 Check tolerance
MEASUREMENT		cm3/1000s. : 3.0
Rated speed rpm Ref. pressure	: 1000	. +
ALDA / ADA hPa rack travel mm	: 900 : -0.60	HIGH IDLE
Tolerance mm	: +- 0.10	Ref. pressure ALDA / ADA hPa : 1100
Ref. pressure		+ Rated speed rpm : 1800
ALDA / ADA hPa		rack travel mm : 9.25
rack travel mm	: -2.00	Tolerance mm : +- 0.25
Tolerance mm	: + 0.20	+ Del. quantity
		cm3/1000 strokes : 31.0 Tolerance
FUEL DELIVERY CHA	ARACTERISTICS	+ cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000S. : +- 3.0
Ref. pressure		+ cm3/1000S. : + 3.0 + Spreed
ALDA / ADA hPa	: 1100	Tolerance
Rated speed rpm		+ cm3/1000 strokes : 2.5
Del. quantity		+ Check tolerance
cm3/1000 strokes	: 37.3	+ cm3/1000s. : 3.0
Tolerance		
cm3/1000 strokes	: +- 0.8	
Check tolerance		+ STARTING FUEL DELIVERY
cm3/1000s.	: 1.8	.}
Spreed		+ Rated speed rpm : 100
Tolerance		+ rack travel mm : > 20.10
cm3/1000 strokes	: 2.5	+ Del. quantity
Check tolerance	. 70	+ cm3/1000 strokes : 52.0
cm3/1000s.	: 3.0	+ Spreed
Dod noonsune		Tolerance : 6.0
Ref. pressure ALDA / ADA hPa	: 1100	+ cm3/1000 strokes : 6.0 + Check tolerance
Rated speed rpm		+ cm3/1000s. : 6.0
Spreed	. 1050	T (ms/18668
Del. quantity		1
cm3/1000 strokes	: 38.0	1
Tolerance	<del>-</del>	
cm3/1000 strokes	: <del>-</del> 1.0	LOW IDLE
Check tolerance		+
cm3/1000s.	: + 2.0	Rated speed rpm : 375
Spreed		+ Del. quantity
Tolerance		+ cm3/1000 strokes : 7.8
cm3/1000 strokes	: 2.5	+ Check tolerance
Check tolerance cm3/1000s.	: 3.0	+ cm3/1000S. : + 2.3 + Spreed
		1 00.004

Check tolerance cm3/1000s. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever

position degree : 14.0 tolerance degree : - 2.0

Rated speed rpm : 425

Rack travel in mm: 7.80 Tolerance mm : + 0.80

Tolerance

cm3/1000 strokes : + 3.5

Check tolerance cm3/1000s. : +- 4.5 Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375 Vacuum hPa : -450.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 14.01.97 Edition Test oil : ISO 4113

Combination No. : 0 400 075 943

Injection pump

Pump designation : PES5M55C32ORS168 EP type number : 0 410 055 978

Governor

Governer design. : RSF350/1700M69-5 Governer no. : 0 420 021 147

Cust. part No. :

Customer—spec. information Customer : MB-NFZ : 0M602-2.9l Motor Power KW : 62.0

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : **←** 2.0 Tolerance °C

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde

: 1 688 901 111 assembly

Opening pressure

: 148.5 bar Tolerance bar :+ 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 2.05 Tolerance mm : + 0.05 Check tolerance mm : +- 0.10

Rack travel in mm : 21.00 Tolerance mm :  $\leftarrow$  1.00

Firing order : 1-2-4-5-3

Phasing : 0-72-144-216-288

Start of delivery blocking

\*NW after s.o.d. : 15.50 Tolerance :  $\leftarrow$  0.20 Check

tolerance  $^{\circ}NW$  : +- 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 37.5

Tolerance cm3/1000 strokes : + 0.5

Check tolerance cm3/1000s. : **←** 1.5

Spreed Tolerance

cm3/1000 strokes : 2.5

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Check tolerance	+
cm3/1000s. : 3.0	SET IDLE CONTROL LEVER POSITION
Rated speed rpm : 350	- Rated speed rpm : 1000
Rack travel in mm: 5.60	
<pre>Tolerance mm : ← 0.10 - Del. quantity -</pre>	- CRT mm max. : 1.45
cm3/1000 strokes : 6.5	
Tolerance	LOW IDLE
cm3/1000 strokes : +- 0.5 Spreed	•
Tolerance	control lever
cm3/1000 strokes : 1.0	position degree : 14.0 tolerance degree : + 2.0
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring
WITH GOVERNOR	Rated speed rpm : 350 rack travel mm : 5.60
IDLE STAGE	SET IDLE AUXILIARY SPRING
-	Rated speed rpm : 380
Rack travel in mm : 6.25 - Tolerance mm : + 0.25 -	rack travel mm : 4.50 Tolerance mm : +- 0.10
Tolerance mm : +- 0.25	Tolerance mm : +- 0.10
	rack travel mm : 3.00
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 579 Tolerance 1/min : +- 50
Rated speed rpm : 1000	-
Ref. pressure	Load pick-up
ALDA / ADA hPa : 1100 - Del. quantity -	Rated speed rpm : 250
cm3/1000 strokes : 37.5	rack travel mm : > 9.20
Tolerance - cm3/1000 strokes : +- 0.5	- Rated speed rpm : 1000
Check tolerance	r Rated Speed (pill . 1000
cm3/1000s. : + 1.5	CRT mm max. : 1.45
Spreed - Tolerance -	rack travel mm : 5.60
cm3/1000 strokes : 2.5	- Rated speed rpm : 350
Check tolerance - cm3/1000s. : 3.0 -	
RATED SPEED -	TORQUE CONTROL
NATED STEED	Rated speed rpm : 1000
	- rack travel mm : 12.35 - Tolerance mm : + 0.05
control lever position degree : 50.0	- Tolerance mm : +- U.U5
	- Rated speed rpm : 1400
Rated speed rpm : 1800	rack travel mm : 12.10 Tolerance mm : + 0.15
rack travel mm : 9.25 - Tolerance mm : + 0.25 -	-
	- Rated speed rpm : 1650
Rated speed rpm : 2300 -	- Rated speed rpm : 1650 - rack travel mm : 11.85 - Tolerance mm : +- 0.15
rack travel mm : 0.50 Tolerance mm : +- 0.50	- locerance min : T- U.13
	Rated speed rpm : 500
1	rack travel mm : 12.10

Tolerance mm	: +- 0.10	<b>}</b>	
	<del>-</del>	Ref. pressure	
		- ALDA / ADA hPa	
ADJUSTMENT TEST A	ADA/ALDA -	- Rated speed rpm	: 500
A	7	Del. quantity	74.7
SETTING	7	cm3/1000 strokes	: 34.3
<b>D</b> A d a 1	4000	- Tolerance	
Rated speed rpm	: 1000	cm3/1000 strokes	: +- 0.8
Ref. pressure	050	- Check tolerance	
ALDA / ADA hPa	: 950 -	- cm3/1000s.	: <del>+-</del> 1.8
Lack flasef was	; ~0.10	Tolerance	2.5
Tolerance mm	: ← 0.10 -	cm3/1000 strokes	
MEAGUREMENT	7	Check tolerance	
MEASUREMENT	7	- cm3/1000s.	: 3.0
Rated speed rpm	: 1000		
Ref. pressure	. 1000		
ALDA / ADA hPa	: 900	HIGH IDLE	
rack travel mm	: -0.60	LUIGH INCE	
Tolerance mm	; + 0.10	Ref. pressure	
IO CEI GI ICE IMB	0.10	- ALDA / ADA hPa	: 1100
Ref. pressure		- Rated speed rpm	
ALDA / ADA hPa	: 750	rack travel mm	
rack travel mm	-2.00	- Tolerance mm	
Tolerance mm	: +- 0.20	Del. quantity	0.25
roccionioc and		cm3/1000 strokes	: 31.0
	•	Tolerance	
		- cm3/1000 strokes	: +- 2.0
FUEL DELIVERY CHA	RACTERISTICS -	Check tolerance	
		- cm3/1000s.	: + 3.0
Ref. pressure		Spreed	
ALDA / ADA hPa	: 1100 -	Tolerance	
Rated speed rpm	: 1400 -	cm3/1000 strokes	: 2.5
Del. quantity	•	- Check tolerance	<del>-</del>
cm3/1000 strokes	: 37.3	cm3/1000s.	: 3.0
Tolerance	•		
cm3/1000 strokes	: <b>←</b> 0.8		
Check tolerance	-	STARTING FUEL DEL	_IVERY
cm3/1000s.	: <del></del> 1.8	-	
Spreed	-	- Rated speed rpm	: 100
Tolerance	-	rack travel mm	: > 20.10
cm3/1000 strokes	: 2.5	- Del. quantity	
Check tolerance	<u> </u>	cm3/1000 strokes	: 52.0
cm3/1000s.	: 3.0	Spreed	
	-	Tolerance	
Ref. pressure	•	- cm3/1000 strokes	: 6.0
ALDA / ADA hPa	: 1100 -	Check tolerance	
Rated speed rpm	: 1650 -	- cm3/1000s.	: 6.0
Spreed	•	-	
Del. quantity		•	
cm3/1000 strokes	: 38.0	†	
Tolerance	. 40	1011 701 7	
cm3/1000 strokes	: <del>+</del> 1.0	LOW IDLE	
Check tolerance		B-4	. 750
cm3/1000s.	: + 2.0	- Rated speed rpm	: 350
Spreed	-	Pel. quantity	. 7.6
Tolerance	2.5	- cm3/1000 strokes	: 7.8
cm3/1000 strokes	: 2.5	- Check tolerance	
Check tolerance	7.0	- cm3/1000s.	: <b>←</b> 2.3
cm3/1000s.	: 3.0	- Spreed	

Check tolerance cm3/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever

position degree : 14.0 tolerance degree : + 2.0

Rated speed rpm : 400

Ruck travel in mm : 6.40 Tolerance mm : ← 0.80

Del. quantity

cm3/1000 strokes : 10.5

Tolerance

cm3/1000 strokes : +- 3.5

Check tolerance

cm3/1000S. : + 4.5 Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350 Vacuum hPa : -450.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

: 15.01.97

Combination No. : 0 402 616 804

Injection pump

Pump designation : PE6P120A300RS7289 EP type number : 0 412 626 883

Governor

Governer design. : Governer no.

Cust. part No. : 866145-P04 v. 11/96

Customer-spec. information Customer : PENTA

: TAD 1030 G Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration clamper

(RoBo diaphragm) : 4.2

Test oil inlet

temo. °C Tolerance °C

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 600

x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.45
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-: 4

rnasing : 0-60-120-180-240
Tolerance : +- 0 20

Check

: +- O.50 tolerance \*NW

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 15.50

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 361.0

Tolerance cm3/1000 strokes	: + 1.0		
Check tolerance cm3/1000s.	: + 4.0		
Spreed			
Tolerance cm3/1000 strokes	: 6.0		
Check tolerance cm3/1000s.	: 10.0		
Rated speed rpm	: 300		
Rack travel in mm Tolerance mm Del. quantity	: 8.00 : +- 0.20		
cm3/1000 strokes Tolerance	: 23.0		
cm3/1000 strokes Check tolerence	: <b>←</b> 3.0		
cm3/1000s. Spreed	: +- 6.0		
Tolerance cm3/1000 strokes Check tolerance	: 7.0		
cm3/1600s.	: 11.0		
(B) SETTING OF INJECTION PUMP WITH GOVERNOR			
FULL LOAD DELIVER	Y AT FULL LOAD STOP		
Rated speed rpm Aneroid pressure	: 700		
hPa Del. quantity	: -		
cm3/1000 strokes Tolerance	: 361.0		
cm3/1000 strokes Check tolerance	: +- 1.0		
cm3/1000s. Spr <del>ee</del> d	: +- 4.0		
Tolerance cm3/1000 strokes	: 6.0		
Check tolerance cm3/1000s.	: 10.0		

Testing:	Te	st	ii	ηg	:
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Rated speed rpm : 300 rack travel mm : 8.00 Tolerance mm : +- 0.20

## TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 15.50 Tolerance mm : + 0.05

Start interlock

## LOW IDLE

Rated sneed rpm : 300
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0
Spreed
Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000s. : 11.0

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97 Test oil : ISO 4113

Combination No. : 0 402 648 782

Injection pump

Pump designation : PE8P120A320LS7906 EP type number : 0 412 628 921

Governor

Governer design. : RQV300...1050PA1325

Governer no. : 0 421 814 188

Cust. part No. : 04222 3940 KY

Customer-spec. information

Customer : KHD

Motor : BF8M1015/C Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 230 Tolerance L/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 8-7-2-6-5

: - 3- 1

Phasing : 0-45-90-135-180

: -270-315

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : +- 0.50

Start of delivery blocking

\*NW after s.o.d. : 315.00 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

\_\_\_\_

	1
Rack travel in mm : 13.60 Tolerance mm : +- 0.05	Rated speed rpm : 560 guide sleeve
TOTAL MINE IN COLOR	travel mm : 3.24
Del. quantity	+ Tolerance ma : +- 0.25
cm3/1000 strokes : 350.0	Total alice like . + " 0.25
Chor lood Strakes : 330.0	T Poted aread non . 115/
Talanana	Rated speed rpm : 1154
Tolerance	guide sleeve
$cm3/1000$ strokes : $\leftarrow$ 1.0	travel mm : 12.00
	+ Toleranse ma : +- C.25
Check tolerance	†
cm3/1000s. $: \leftarrow 4.0$	+ Rated speed rpm : 1230
	+ guide sleeve
Spreed	† travel mm : 13.50
	+ Tolerance mm : + 0.50
Tolerance	+
cm3/1000 strokes : 6.0	
	+ GUIDE SLEEVE POSITION
Check tolerance	+
cm3/1000s. : 9.0	+
	+ control lever
	position degree : -1
	Rated speed rpm : 1120
Rated speed rpm : 300	1
Trades opens that the second	Rack travel in mm: 12.60
Rack travel in mm : 4.60	+ Tolerance mm : +- 1.30
Tolerance mm : + 0.10	Tweet strate that the tree to
Del. quantity	I
cm3/1000 strokes : 23.0	FULL LOAD DELIVERY AT FULL LOAD
Tolerance	T FOLL LOAD DELIVERY AT FOLL LOAD
cm3/1000 strokes : - 3.0	Rated speed rpm : 1050
Check tolerance	Arieroid pressure
cm3/1000s. : + 6.0	+ hPa : 1700
Spreed	t Del. quantity
Tolerance	+ cm3/1000 strokes : 350.0
cm3/1000 strokes : 8.0	+ Tolerance
Check tolerance	- cm3/1000 strokes : +- 1.0
cm3/1000s. : 12.0	+ Check tolerance
	+  cm3/1000s. : + 4.0
	+ Spreed
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : 6.0
	+ Check tolerance
	+  cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	+
	†
Rated speed rpm : 1098	+
guide sleeve	+ CONTROL LEVER
travel mm : 10.02	+
Tolerance mm : ← 0.15	+ control lever
	+ position degree : 121.0
Rated speed rpm : 300	+ tolerance degree : + 4.0
guide steeve	+
travel mm : 1.24	+ RATED SPEED
Tolerance mm : + 0.20	+ rack travel mm : 12.60
	+ Rated speed rpm : 1085
Rated speed rpm : 860	+ Tolerance 1/min : +- 5
guide sleeve	+
travel mm : 5.59	+ rack travel mm : 4.00
Tolerance mm : + 0.25	Rated speed rpm : 1135
	1 Marca abaca i kin

Rated speed rpm	: 560
guide sleeve travel mm	: 3.24
Tolerance ma	: 3.24
Rated speed rpm guide sleeve	: 1154
travel mm	: 12.00
Toleranse ma	: +- C.25
Rated speed rpm guide sleeve	: 1230
travel mm	: 13.50
Tolerance mm	: <b>+-</b> 0.50
GUIDE SLEEVE POSI	TION
control lever	
position degree Rated speed rpm	: -1
rated speed thin	. 1120
Rack travel in mm Tolerance mm	: 12.60 : +- 1.30
FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Arieroid pressure	: 1050
hPa	: 1700
Del. quantity cm3/1000 strokes	: 350.0
Tolerance	: 330.0
cm3/1000 strckes	: +- 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed	<del>-</del>
Tolerance cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000s.	: 9.0
CONTROL LEVER	
control lever position degree	: 121.0
tolerance degree	: + 4.0
RATED SPEED	
rack travel mm	: 12.60 : 1085
Rated speed rpm Tolerance 1/min	: +- 5

Tolerance 1/min : +- 15 : 0.50 rack travel mm Tolerance mm : +- 0.50 Rated speed rpm : 1300 LOW IDLE control lever position degree : 75.0 tolerance degree : + 4.0 Testing: Rated speed rpm : rack travel mm : 300 4.60 Talerance mm 200 Rated speed rpm : CRT mm min. : > 6.10 Rated speed rpm : 345 TORQUE CONTROL 1050 Rated speed rom:: rack travel mm : 13.60 Tolerance mm : +- 0.05 ANERGID/ALTITUDE COMPENSATOR TEST SETTING 400 Rated speed rpm : 1700 Pressure hPa rack travel mm : 13.60 : **←** 0.05 Tolerance mm Pressure hPa 400 Rated speed rpm : rack travel mm 8.30 : + 0.20Tolerance mm MEASUREMENT 400 Rated speed rpm :

Pressure hPa : 1100
rack travel mm : 12.50
Tolerance mm : + 0.05

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa :

hPa : -Rated speed rpm : 400 Del. quantity

cm3/1000 strokes : 240.0

Tolerance

cm3/1000 strokes : + 1.0 Check tolerance

cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 8.30 Tolerance mm : + 0.30 Del. quantity cm3/1000 strokes : 135.0 Tolerance cm3/1000 strokes : + 20.0 Check tolerance cm3/1000s. : + 24.0

## LOW IDLE

Rated speed rpm : 300 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +-6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

End of test specification sheet

Pressure hPa

rack travel mm : +

570

: **←** 0.10

9.90

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 30.05.96 : 50.05.yo : ISO 4113 Test oil

Combination No. : 0 402 698 806

Injection pump

Pump designation : PE8P120A72ULS7531 EP type number : 0 412 628 896

Governor

Governer design. : RE30

Governer no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information Customer : SCANIA

: DSC1409, DSC1416 Motor

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : ← 0.1

Test nozzie holde

: 1 688 901 104 assembly

Opening pressure

bar : 251.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery under Section C.

#### BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05 Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : **←** 1.50

Firing order : 1-2-7-3-4

: - 6- 8

Phasing : 0-45-90-135-180

> : -270-315 : **←** 0.50

Tolerance Check

tolerance \*NW :  $\leftarrow$  0.75

## Start of delivery mark

Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

Vibration

damper

(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING Warm-up time: 3 minutes at r.=600 min-1, Uact = 2.5 V TESTING & SETTING RACK TRAVEL SENSOR POSITION Engine speed min-1: Setting point (P, R and H pump) 3.100 Uact V 13.00 CRT mm : +/- 0.05 Tolerance mm Check : +/- 0.10 tolerance mm Check value (P, R and H pump) Uact V 1,700 CRT mm 6.15 Tolerance mm : +/- 0.25 Check : +/- 0.30 tolerance mm Setting point (amuq M) 3.100 Uact V 12.50 CRT mm Tolerance mm : +/- 0.05 Check : +/- 0.10 tolerance mm Check value (amua M) 1.700 Uact V 5.50 CRT mm : +/- 0.25 Tolerance mm Check : +/- 0.30 tolerance mm Stop position : Value with Uact V deenergised adjusting magnet

and control rod in

stop position.

0.75

: +/- 0.25

: +/- 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not H and M pumps)
Test with control rod in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600

Difference Amplitude to

Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

700 Rated speed rpm 3.000 Uact V Del. quantity cm3/1000 strokes : 248.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. : +-4.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

## FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
Uact V : 3.000
Del. quantity
cm3/1000 strokes : 224.0
Tolerance
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000s. : + 6.0

#### TEST POINT L1

Rated speed rpm : 250
Uact V : 1.410
Tolerance Volt : + 0.060
Check tolerance
Volt : + 0.060
Del. quantity
cm3/1000 strokes : 16.0

CRT mm

Check

Tolerance mm

tolerance mm

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Spreed

4.0

Tolerance cm3/1J00 strckes : Check tolerance cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 14.01.97 Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump

Fump designation : PES6P12CA12CRS739C

EP type number : 0 412 726 945

Governor

Governer design. : RQV350...1100PA1244K

Governer no. : 0 421 815 477

Cust. part No. : 3283279

Customer-spec. information Customer : CUMMINS

Motor

: 6CTAA

Power KW

: 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

: +- 2.0 Tolerance °C

Overflow valve : 2 417 413 093

40

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 90 Tolerance L/h : + 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.30 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : ← 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery blocking

\*NW after s.o.d. : 7.70 Tolerance : + 0.10

Check

tolerance \*NW : +- 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 13.70

Tolerance mm	: +- 0.05	├ guide sleeve
	•	travel mm : 4.28
Del. quantity	***************************************	Tolerance mm : + 0.25
cm3/1000 strokes	: 173.0	10terance min 0.25
chis/ 1000 strokes	: 1/3.0	43700
	-	Rated speed rpm : 1380
Tolerance	-	guide sleeve
cm3/1000 strokes	: <b>←</b> 1.0 -	travel mm : 13.50
	4	Tolerance mm : + 0.50
Check tolerance		
cm3/1000s.	: + 4.0	
CM3/ (UOUS)	: 4.0	CUIDE OF CENE DOCUTION
_		GUIDE SLEEVE POSITION
Spr <del>ee</del> d	•	<del> </del>
	•	+
Tolerance	-	+ control lever
cm3/1000 strokes	: 5.0 -	position degree : - 1
		Rated speed rpm : 1195
Ohaali dalamanaa		r Rated Speed (Mill : 1775
Check tolerance	-	10.00
cm3/1000S.	: 9.0 -	Rack travel in mm : 12.00
		Tolerance mm : + 2.00
		1
	_	
Rated speed rpm	: 350	FULL LOAD DELIVERY AT FULL LOAD STOP
varen sheen i hii	. 550	- I OFF FOUR REFERENCE AT LOFF FOUR STALL
	- / /5	1420
Rack travel in m		Rated speed rpm : 1100
Tolerance mm	: ← 0.10 -	Aneroid pressure
Del. quantity	•	hPa : 1500
cm3/1000 strokes	: 18.0 -	Del. quantity
Tolerance	. 10.0	- cm3/1000 strokes : 173.0
	70	
cm3/1000 strokes	: <del>+</del> 3.0 -	Tolerance
Check tolerance	•	cm3/1000 strokes : +- 1.0
cm3/1000s.	: <del>←</del> 5.0 -	- Check tolerance
Spreed		cm3/1000s. : + 4.0
Tolerance	_	Spreed
	: 7.0	Tolerance
cm3/1000 strokes	: 7.0	
Check tolerance	*	cm3/1000 strokes : 5.0
cm3/1000s.	: 11.0	- Check tolerance
	•	- cm3/1000s. : 9.0
(B) SETTING OF I	NUECTION PLIMP	
WITH GOVERNOR	102012011 10111	
MILL GOAEKIAOK	•	CONTROL LEVER
	•	CONTROL LEVER
		t
GUIDE SLEEVE TRA	VEL -	the control lever
	-	position degree : 68.0
Rated speed rpm	: 1159 -	tolerance degree : + 4.0
guide sleeve	- ****	1
	: 10.27	control lever
travel mm		
Tolerance mm	: <b>←</b> 0.15	position degree : 122.0
	-	tolerance degree : +- 4.0
Rated speed rpm	: 350 -	<b>-</b>
guide sleeve		RATED SPEED
travel mm	: 1.93	rack travel mm : 12.70
	: +- 0.20	
Tolerance mm	; <del>-</del> 0.20	
		Tolerance 1/min : +- 5
Rated speed rpm	: 710 -	+
guide sleeve	-	rack travel mm : 4.00
travel mm	: 5.79 -	Rated speed rpm : 1240
Tolerance mm	: <del>+</del> 0.25	Tolerance 1/min : + 15
TOLET GILLE THE		
	/20	- Check
Rated speed rpm	: 420 -	speed 1/min : +- 20

rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 1350	† † † † †
LOW IDLE		‡
control lever position degree tolerance degree	: 74.0 : + 4.0	†
control lever position degree tolerance degree		+
Testing:		<u> </u>
Rated speed rpm rack travel mm Tolerance mm	: 350 : 4.60 : + 0.10	+
Rated speed rpm	: 250	Ŧ
CRT mm min.	: > 7.50	Ŧ
Rated speed rpm	: 350	Ī
TORQUE CONTROL		+
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 13.70 : + 0.05	Ī
Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.85 : + 0.10	Ŧ
Rated speed rpm rack travel mm Tolerance mm	: 500 : 12.95 : + 0.15	† † †
ANEROID/ALTITUDE COMPENSATOR TEST		‡
SETTING		‡
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 700 : 1500 : 13.85 : + 0.10	† † † †
Pressure hPa Rated speed rpm	: - : 700	‡

rack travel mm Tolerance mm	: + 0.20	
MEASUREMENT		
Rated speed rpm	: 700	
Pressure hPa rack travel mm Tolerance mm	: 400 : 11.70 : +- 0.20	
Pressure hPa rack travel mm Tolerance mm	: 600 : 13.30 : + 0.05	
Start interlock		
Rated speed rpm Rated speed rpm	: > 100 : < 290	
Check speed 1/min	: > 80	
Check speed 1/min	: < 300	
FUEL DELIVERY CHA	ARACTERISTICS	
Aneroid pressure		
Aneroid pressure hPa Rated speed rpm Del. quantity	: 1500 : 700	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1500 : 700 : 171.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1500 : 700 : 171.0 : + 3.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 1500 : 700 : 171.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: 1500 : 700 : 171.0 : + 3.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 1500 : 700 : 171.0 : + 3.0 : + 6.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance	: 1500 : 700 : 171.0 : + 3.0 : + 6.0 : 8.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Appreed Tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm	: 1500 : 700 : 171.0 : + 3.0 : + 6.0 : 8.0 : 12.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1500 : 700 : 171.0 : + 3.0 : + 6.0 : 8.0 : 12.0	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Appreed Tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity	: 1500 : 700 : 171.0 : + 3.0 : + 6.0 : 8.0 : 12.0	

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity cm3/1000 strokes	:	190.0
Tolerance cm3/1000 strokes	: +-	- 20.0
Check tolerance cm3/1000s.	: +-	- 24.0

## LOW IDLE

**350** Rated speed rpm : Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : **←** 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. 11.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

Test oil : 13.01.97

Combination No. : 0 402 746 883

Injection pump

Pump designation : PES6P110A320RS7198

EP type number : 0 412 716 802

Governor

Governer design. : RQV275...1250PA942K

Governer no. : 0 421 815 234

Cust. part No. : CCEP 5097A

Customer-spec. information

Customer : RENAULT V.I.

Motor

: MIDR 06.02.26 L

Power KW

: 132.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar :

Tolerance bar : +- 0.1

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.65 : +- 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm : 13.00 Tolerance mm : + 0.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240
Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.50

Start of delivery mark

: **←** 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm: 14.65

Tolerance mm : +- 0.05

BASIC SETTING

Rated speed rpm : 1250	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Del. quantity cm3/1000 strokes : 158.0	cm3/1000s. : + 3.5 Spreed Tolerance
Tolerance cm3/1000 strokes : +- 1.0	- cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s. : + 3.5	
Spreed	CONTROL LEVER
Tolerance cm3/1000 strokes : 4.0	control lever position degree : 114.0 tolerance degree : + 4.0
Check tolerance cm3/1000s. : 7.5	RATED SPEED  rack travel mm : -1.00  Rated speed rpm : 1320  Tolerance î/min : +- 5
Rated speed rpm : 275 Del. quantity cm3/1000 strokes : 19.5 Tolerance cm3/1000 strokes : + 2.5	rack travel mm : -10.65 Rated speed rpm : 1490 Tolerance 1/min : + 15
Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance	rack travel mm : -14.15 Tolerance mm : + 0.55 Rated speed rpm : 1600
cm3/1000 strokes : 4.5 Check tolerance	<b>†</b>
cm3/1000s. : 7.5	LOW IDLE
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : 62.0 tolerance degree : +- 4.0
GUIDE SLEEVE POSITION	Testing:
control lever	Rated speed rpm : 200
position degree : - 1 Rated speed rpm : 1385	☐ CRT mm max. : < -8.90
Rack travel in mm: 13.60	Rated speed rpm : 415
Tolerance mm : + 1.30	TORQUE CONTROL
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 1250
Rated speed rpm : 1250 Aneroid pressure hPa : 1000 Del. quantity	Rated speed rpm : 750 rack travel mm : -0.80 Tolerance mm : + 0.10
cm3/1000 strokes : 158.0	Rated speed rpm : 750 rack travel mm : -5.60

Talanana m	: + 0.10 +	Del mandida.	
Tolerance mm	: + 0.10	Del. quantity cm3/1000 strokes	. 62.0
Rated speed rpm	: 750	Tolerance	. 62.0
rack travel mm	-8 no I	cm3/1000 strokes	• +- 50
Tolerance mm	÷ + 0.10	Check tolerance	
TOTAL GITTE THE	1	cm3/1000s.	
		Spreed	0.0
ANEROID/ALTITUDE	1	Tolerance	
COMPENSATOR TEST	1	cm3/1000 strokes	: 8.0
_	1		
	+	Aneroid pressure	
SETTING	<del>}</del>	hPa	•
	+	Rated speed rpm	: 750
Rated speed rpm		Del. quantity	
Pressure hPa	: 1000 +	cm3/1000 strokes	: 39.0
	+	Tolerance	
Pressure hPa Rated speed rpm	· +	cm3/1000 strokes	: <del>←</del> 5.0
Rated speed rom	: 1250	Check tolerance	
rack travel mm Tolerance mm	: -3.40	cm3/1000s.	: <del>←</del> 8.0
loterance mm	: ← 0.20 <b>+</b>	Spreed	
MEAGUDEMENT	†	Tolerance	. 0.0
MEASUREMENT	†	cm3/1000 strokes	: 8.0
Rated speed rpm	. 1250	Aneroid pressure	
waten sheen thus	: 1250 I	hPa	• -
Pressure hPa	: 220	Rated speed rpm	500
rack travel mm	-2.60	Del. quantity	. 500
Tolerance mm	+ 0.20	cm3/1000 strokes	: 68.0
TOCCI CITIC IIII	1	Tolerance	. 66.6
Pressure hPa	: 360	cm3/1000 strokes	: + 1.0
rack travel mm		Check tolerance	
Tolerance mm		cm3/1000s.	
	+		
Start interlock	+		
	+		
Rated speed rpm	: > 150 +	STARTING FUEL DEL	LIVERY
Rated speed rpm	: < 200		4.5.5
	+	Rated speed rpm	: 100
Check	<b>+</b>	Del. quantity	400.0
speed 1/min	: > 130 +	cm3/1000 strokes	: 100.0
Check		Tolerance	
speed 1/min	: < 220	cm3/1000 strokes	: - 15.0
		Check tolerance cm3/1000s.	: <del>+-</del> 19.0
FUEL DELIVERY CHA	PACTERISTICS I	CIID7 10003.	
LOCE DEPTACKS ONLY	-		
Aneroid pressure	1		
hPa	: 1000	· · · · · · · · · · · · · · · · · · ·	
Rated speed rpm	: 750	LOW IDLE	
Del. quantity	+		
cm3/1000 strokes	: 127.0	Rated speed rpm	: 275
Tolerance	+	Del. quantity	
cm3/1000 strokes	: + 2.0 +	cm3/1000 strokes	: 19.5
Check tolerance	+	Tolerance	
cm3/1000s.	: <b>←</b> 5.0 <b>†</b>	cm3/1000 strokes	: + 2.5
A	†	Check tolerance	
Aneroid pressure	. †	cm3/1000s.	: <del></del> 5.0
hPa	· - +	Spreed Toloropeo	
Rated speed rpm	: 750	Tolerance cm3/1000 strokes	: 4.5
	+	CHOT TOOU STROKES	• 4.7

Check tolerance cm3/1000s.	:	7.5	

#### Work Pemarks

Per to Service Info for test and adjustment instructions. See microcard(s) W40G/...

: 18.12.96 Edition Test oil : ISO 4113

Combination No. : 0 402 795 202

Injection pump

Pump designation : PES5H120/720/3LS1002

: -1

EP type number : 0 412 725 202

Governor

Governer design. : RE33

Governer no. : D 421 890 362

Cust. part No. : 51.111103-7408

Customer-spec. information

Customer : MAN

: D 2865 LUH 07 Motor

: 228.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temo. °C 40 Tolerance °C

Overflow valve : 2 417 413 073

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar 1.5

: 1 680 750 089 Test lines

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

: 9.99 Prestroke mm : **←** 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : + 0.50

Firing order : 1-3-5-4-2

: 0-72-144-216-288 Phasing

: +- 0.30 Tolerance

Check

tolerance "NW : + 0.75

Start of delivery blocking

Tolerance : + - 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. 5

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1: 0 4	Amplitude V
Engine speed min-1: U	- Amplitude V : 1.4 - Tolerance V : +/- 0.6
Setting point	- Check
(P, R and H pump)	tolerance V : +/- 1.20
Uact V : 3.100	- - Engine speed min-1: 600
CRT mm : 13.00	- Difference
Tolerance mm : +/- 0.05	- Amplitude to
Check	- Amplitude V : max.1.4
tolerance mm : +/- 0.10	<u>-</u>
Check value	
(P, R end H pump)	- (C) INJECTION PUMP WITH POSITIONER
-	TROT MAYIN 14
Uact V : 1.700	- TEST POINT V1
CRT mm : 6.15	- Rated speed rpm : 750
Tolerance mm : +/- 0.25	- Vact V : 3.350
Check	- Prestroke solenoid
tolerance mm : +/- 0.30	- Stroke mm : 10.00
†	- Del. quantity - cm3/1000 strokes : 332.0
Setting point	- Tolerance
(M pump)	- cm3/1000 strokes : +- 1.0
<del>)</del>	- Check tolerance
Uact V : 3.100	- cm3/1000s. : + 4.0
CRT mm : 12.50	- Spreed
Tolerance mm : +/- 0.05	- Tolerance - &m3/1 <b>000</b> strokes : 5.0
tolerance mm : +/- 0.10	- Check tolerance
COCCI GITCC TIRM	- cm3/1000s. : 9.0
Check value	•
(M pump)	- FUEL DELIVERY CHARACTERISTICS
Uact V : 1.700	- - Rated speed rpm : 1000
CRT mm : 5.50	- Uact V : 3.290
Tolerance mm : +/- 0.25	- Prestroke solenoid
Check	- Stroke mm : 8.00
tolerance mm : +/- 0.30	- Del. quantity - cm3/1000 strokes : 309.0
Stop position	- Tolerance
1	- cm3/1000 strokes : +- 4.0
Uact V : Value with	- Check tolerance
deenergised adjusting magnet	- cm3/1000s. : + 8.0
and control red in stop position.	- Spreed - Tolerance
CRT mm : 0.75	- cm3/1000 strokes : 8.0
Tolerance mm : +/- 0.25	- Check tolerance
Check	- cm3/1000s. : 12.0
tolerance mm : +/- 0.35	- - Rated speed rpm : 500
I	- Rated speed rpm : 500 - Uact V : 2.900
ENGINE-SPEED SENSOR	- Prestroke solenoid
(ALL P and R pumps not	- Stroke mm : 9.20
H and M pumps)	- Del. quantity
Test with control and	- cm3/1000 strokes : 304.0 - Tolerance
Test with control rod in stop position	-
III atop position	- Check tolerance
Engine speed min-1: 60	- cm3/1000s. : +- 8.0

MO4

Spreed					
Cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  Rated speed rpm : 500 Uact V : 2.100 Prestroke solenoid Stroke mm : 6.20 Del. quantity cm3/1000 strokes : 168.0 Tolerance cm3/1000 strokes : + 4.0 Check tolerance cm3/1000s. : + 8.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  Rated speed rpm : 750 Uact V : 1.450 Prestroke solenoid Stroke mm : 10.00 Del. quantity cm3/1000 strokes : 65.0 Tolerance cm3/1000 strokes : + 4.0 Check tolerance cm3/1000s. : + 8.0  TEST POINT L1  Rated speed rpm : 300 Uact V : 1.520 Tolerance Volt : + 0.060 Check tolerance volt : + 0.060 Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance Colt : + 0.060 Check tolerance Volt : + 0.060 Check tolerance volt : + 0.060 Check tolerance cond/1000 strokes : 30.0 Tolerance cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 12.0  STARTING FUEL DELIVERY	Spreed				
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Rated speed rpm : 300 Uact V : 1.520 Tolerance Volt : + 0.060 Check tolerance Volt : + 0.060 Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid	TEST POINT L1				
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Tolerance Volt : + 0.060 Check tolerance Volt : + 0.060 Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid	Rated speed rpm	•			
Check tolerance Volt :+ 0.060 Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes :+ 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid					
Volt : + 0.060 Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		•	+-	0.060	
Prestroke solenoid Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid				0.040	
Stroke mm : 7.20 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		-	+	0.060	
Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid				7 20	
cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		•		1.20	
Tolerance cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid				30 O	
cm3/1000 strokes : + 3.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		ě		3U.U	
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid			_	7.0	
Tolerance cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  STARTING FUEL DELIVERY  Rated speed rpm: 100 Uact V: 2.450 Prestroke solenoid		•	-	2.0	
cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  STARTING FUEL DELIVERY  Rated speed rpm: 100 Uact V: 2.450 Prestroke solenoid	•				
Check tolerance cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		•		8.0	
cm3/1000s. : 12.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		•		0.0	
STARTING FUEL DELIVERY  Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		•		12.0	
Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid		٠			
Rated speed rpm : 100 Uact V : 2.450 Prestroke solenoid					
Uact V : 2.450 Prestroke solenoid	STARTING FUEL DELI	VE	ERY		
Uact V : 2.450 Prestroke solenoid				400	
Prestroke solenoid		•			
		:		2.450	
Stroke mm : /.UU				7 00	
	Stroke mm	:		7.00	

Del. quantity
cm3/1000 strokes : 173.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 08.08.95 Edition : ISO 4113 Test oil

Combination No. : 0 402 796 806

Injection pump

Pump designation : PES6P120A720RS7240 EP type number : 0 412 726 855

Governor

Governer design. : RE30

Governer no. : 0 421 890 013

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE : 8460.41.5020 Motor

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

: 5.15 Prestroke mm : +- 0.05 Tolerance mm Check : ← 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : ← 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

Check

tolerance \*NW : ← 0.40

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)

Uact V 3,100 : 13.00 CRT mm Tolerance mm : +/- 0.05

Check

: +/- 0.10 tolerance mm

Check value (P, R and H pump)

1,700 Uact V 6.15 CRT mm Tolerance mm : +/- 0.25 Check

: +/- 0.30 tolerance mm

Setting point (dmuq M)

Uact V 3,100 12.50 CRT mm Tolerance mm : +/- 0.05 Check

tolerance mm : +/- 0.10

Check value (amua M)

1.700 Uact V CRT mm 5.50 : +/- 0.25 Tolerance mm Check

: +/- 0.30 tolerance mm

Stop position

Uact V : Value with

deenergised adjusting magnet and control rod in

stop position.

0.75 CRT mm Tolerance mm : +/- 0.25

Check

: +/- 0.35 tolerance mm

ENGINE-SPEED SENSOR (ALL P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60 Amplitude V 1.4 Tolerance V : +/- 0.6Check

: +/- 1.20 tolerance V

Engine speed min-1: 600

Difference

Amplitude to

Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

## TEST POINT V1

1050 Rated speed rpm : 2.900 Uact V Del. quantity cm3/1000 strokes : 236.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance 4.0

cm3/1000s. Spreed

Tolerance 5.0

cm3/1000 strokes : Check tolerance

cm3/1000s. 9.0

#### FUEL DELIVERY CHARACTERISTICS

Rated speed rpm 700 Uact V 2.790 Del. quantity cm3/1000 strokes : 253.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. : +-6.0

500 Rated speed rpm Uact V 2.690

Del. quantity cm3/1000 strokes : 258.0

Tolerance

cm3/1000 strokes : +-5.0

Check tolerance

cm3/1000s. 8.0 : +-

#### TEST POINT L1

Rated speed rpm 275 1.580 Uact V Tolerance Volt : +- 0.030

Check tolerance		
Volt	: +-	0.060
Del. quantity		
cm3/1000 strokes	:	<b>35.0</b>
Tolerance		
cm3/1000 strokes	: +	3.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	12.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.01.97 Edition Test oil : ISO 4113

Combination No. : 0 403 446 300

Injection pump

Pump designation : PES6MW100/320RS1171

EP type number : 0 413 406 156

Governor

Governer design. : RQV300...1300MW80-7

Governer no. : 0 420 083 267

Cust. part No. : 5000591463

Customer-spec. information Customer : RVI

: MIUS 050212B Motor

: 117.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : <del>←</del> 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.05 : +- 0.05 Tolerance mm Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 4

: 0<del>-6</del>9-120-180-240 Phasing

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

## CRT ZERO POSITION

Rack travel in mm : 11.00 Tolerance mm : + 0.05

## BASIC SETTING

Rated speed rpm : 1300

Del. quantity

cm3/1000 strokes : 90.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed	
Tolerance cm3/1000 strokes	; 3.5
Check tolerance cm3/1000s.	: 6.0
Rated speed rpm	: 300
Rack travel in mm Tolerance mm	: -5.20 : ← 0.20
Del. quantity cm3/1000 strokes	: 18.0
Tolerance	: + 2.0
Check tolerance cm3/1000s. Spreed	: + 4.5
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 5.5
(B) SETTING OF IN	NECTION PUMP
GUIDE SLEEVE TRAN	/EL
GUIDE SLEEVE TRAN	/EL : 1355
GUIDE SLEEVE TRAN	
GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm	: 1355 : 8.74
GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm	: 1355 : 8.74 : ← 0.25
Rated speed rpm guide sleeve travel mm Tolerance mm guide sleeve travel mm Tolerance mm Rated speed rpm Tolerance mm	: 1355 : 8.74 : ← 0.25 : 300 : 1.38
Rated speed rpm guide sleeve travel mm Tolerance mm guide sleeve travel mm Tolerance mm Tolerance mm Tolerance mm	: 1355 : 8.74 : ← 0.25 : 300 : 1.38 : ← 0.25
Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm Rated speed rpm Rated speed rpm Rated speed rpm	: 1355 : 8.74 : ← 0.25 : 300 : 1.38 : ← 0.25 : 871 : 5.79
Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm	: 1355 : 8.74 : ← 0.25 : 300 : 1.38 : ← 0.25 : 871 : 5.79 : ← 0.25

guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: 11.50 : + 0.50
control lever position degree Rated speed rpm	: - 1 : 1430
Rack travel in mm Tolerance mm	: 9.80 : + 2.00
FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1090 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1900 strokes Check tolerance cm3/1000s.	: 1300 : 700 : 90.0 : + 1.0 : + 3.0 : 3.5 : 6.0
CONTROL LEVER	
control lever position degree tolerance degree	: 299.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: -1.00 : 1380 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: −7.00 : 1480 : ← 15
rack travel mm Tolerance mm Rated speed rpm	: −10.50 : ← 0.50 : 1600

Rated speed rpm guide sleeve

Rated speed rpm

travel mm Tolerance mm : 374

: + 0.25

: 470

2.49

		+ Check
		speed 1/min : < 250
LOW IDLE		+
		FUEL SELTUEDY AND ASSESSED OF
control lever		FUEL DELIVERY CHARACTERISTICS
position degree	: 245.0	Aneroid pressure
tolerance degree		+ hPa : 700
•		Rated speed rpm : 900
Testing:		- Del. quantity
	700	+ cm3/1000 strokes : 89.0
Rated speed rpm		+ Tolerance
rack travel mm Tolerance mm		+ cm3/1000 strokes : + 1.5 + Check tolerance
rocerance min	: - 0.20	+ cm3/1000s. $+$ 4.0
Rated speed rpm	: 200	- Spreed - 4.0
nacea speed (bii	. 200	Tolerance
CRT mm min.	: < -3.40	+ cm3/1000 strokes : 5.0
		- Check tolerance
<del></del>		+ cm3/1000s. : 7.0
TORQUE CONTROL		1
		+ Aneroid pressure
Rated speed rpm	: 1300	+ hPa : -
		+ Rated speed rpm : 500
Rated speed rpm	: 900	+ Del. quantity
		+ cm3/1000 strokes : 51.0
ANEDOTO / AL TITUDE		+ Tolerance
ANEROID/ALTITUDE COMPENSATOR TEST		+ cm3/1000 strokes : + 1.0 + Check tolerance
COMPENSATOR 1EST		- cm3/1000s. : + 3.0
		I (11157 (0003)
SETTING		1
JC113115		
Rated speed rpm	: 500	+ STARTING FUEL DELIVERY
Pressure hPa		+
		+ Rated speed rpm : 100
Pressure hPa	• • • • • • • • • • • • • • • • • • • •	+ reck travel mm : 20.25
Rated speed rpm	: 500	+ Tolerance mm : + 0.75
	: -1.90	- Del. quantity
Tolerance mm	: <b>←</b> 0.20	+ cm3/1000 strokes : 100.0
ME A CLIDEMENT		+ Tolerance
MEASUREMENT		+ cm3/1000 strokes : +- 10.0 + Check tolerance
Rated speed rpm	: 500	- cm3/1000s. : +- 13.0
vared speed (bill	. 550	T (1157 10005) 15.0
Pressure hPa	: 120	
rack travel mm	: -1.40	1
Tolerance mm	: + 0.10	+
		+ LOW IDLE
Pressure hPa	: 200	+
rack travel mm	: -0.65	+ Rated speed rpm : 300
Tolerance min	: ← 0.05	+ Del. quantity
		+ cm3/1000 strokes : 18.0
Start interlock		+ Tolerance
Dahad speed	. \ 100	- cm3/1000 strokes : + 2.0
Rated speed rpm		+ Check tolerance + cm3/1000s. : +- 4.5
Rated speed rpm	. \ 230	+ Spreed + 4.5
Check		+ Tolerance
speed 1/min	: > 80	- cm3/1000 strokes : 3.5
Special 17 III 111	• • • • • • • • • • • • • • • • • • • •	1 0000 0610063 . 313
M11		
•••		

Check tolerance cm3/1000s.	:	5.5	

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 15.01.97 Edition Test oil : ISO 4113

Combination No. : 0 403 476 146

Injection pump

Pump designation : PES6MW100/320RS1245

EP type number : 0 413 406 247

Governor

Governer design. : RSV300...1100MW0A400

Governer no. : 0 420 085 293

Cust. part No. : 11032700

Customer-spec. information Customer : VCE

Motor : TD 63KDE : 90.0 Power KW

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holde

: 0 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0 x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

: 3.05 Prestroke mm : +- 0.05 Tolerance mm

Check

: **←** 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 105.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: <del>-- 3.0</del> cm3/1000s.

	•	<b>-</b> 1	
<b></b>		Tolerance	- ·
Spreed	†	cm3/1000 strokes :	3.5
	†	Check tolerance	
Tolerance	<u> </u>	cm3/1000s. :	6.0
cm3/1000 strakes	; 3.5		
Check tolerance			
cm3/1000s.	: 6.0	CONTROL LEVER	
CINO/ 10003.	· 5.5	CONTROL LEVER	
		control lever	
	1	position degree :	81 Ü
Rated speed rpm	: 300	tolerance degree :	
nacca speca (pii	. 300	toter drice degree .	7.0
Rack travel in mm	: 5.40	RATED SPEED	
	: ← 0.10 <sup>1</sup>		11.30
Del. quantity	1		1145
cm3/1000 strokes	: 17.0	Tolerance 1/min :	<del>-</del> 5
Tolerance		. J. J. J. J. J. J. J. J. J. J. J. J. J.	-
	: + 2.0	rack travel mm :	4.00
Check tolerance		Rated speed rpm :	
cm3/1000s.	: + 4.5	Tolerance 1/min :	
Spreed	1		, es.
Tolerance	1	rack travel mm :	1.00
	: 3.5		<b>←</b> 0.70
Check tolerance	1		1420
	: 5.5	Nated Speed (pill .	1760
100001	·	rack travel mm :	4.00
	1		1275
(B) SETTING OF INJ	ECTION PUMP	TOTAL OPECA ( p.i.)	1213
	1		
WITH GOVERNOR	1		
		gagair-man bhaga (araga carlo rainlith taraga ragasy) darko aanka j	
WITH GOVERNOR		LOW IDLE	
		LOW IDLE	
WITH GOVERNOR			
GUIDE SLEEVE POSIT		control lever	404.0
GUIDE SLEEVE POSIT	TION	control lever position degree :	106.0
GUIDE SLEEVE POSIT	: - 3	control lever	
GUIDE SLEEVE POSIT	: - 3	control lever position degree : tolerance degree :	<b>←</b> 4.0
GUIDE SLEEVE POSIT	: - 3 : 800	control lever position degree :	<b>←</b> 4.0
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm	: - 3 : 800 : 0.65	control lever position degree : tolerance degree : Setting point w/out	← 4.0 bumper spring
GUIDE SLEEVE POSIT	: - 3 : 800 : 0.65	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm :	← 4.0  bumper spring  300
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm	: - 3 : 800 : 0.65	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm :	← 4.0  bumper spring  300  4.90
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm governor spring	: - 3 : 800 : 0.65	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm :	← 4.0  bumper spring  300  4.90
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm :	← 4.0  bumper spring  300  4.90
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm governor spring	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm :	← 4.0  bumper spring  300  4.90
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm :	← 4.0  bumper spring  300  4.90  ← 0.10
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm :	← 4.0  bumper spring  300  4.90  ← 0.10
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out l Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm : rack travel mm :	← 4.0  bumper spring  300  4.90  ← 0.10  300  5.40
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY	ION  : - 3 : 800 : 0.65 : + 0.35 : 5.00	control lever position degree : tolerance degree : Setting point w/out l Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm : rack travel mm :	← 4.0  bumper spring  300  4.90  ← 0.10
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVERY	: - 3 : 800 : 0.65 : + 0.35	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm : rack travel mm : Tolerance mm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure	: - 3 : 800 : 0.65 : + 0.35 : 5.00	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm : rack travel mm : Tolerance mm : Tolerance mm : Tolerance mm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure hPa	ION  : - 3 : 800 : 0.65 : + 0.35 : 5.00	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tated speed rpm : rack travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY Rated speed rpm Aneroid pressure hPa Del. quantity	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : 1100 : 1500	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Testing: Rated speed rpm : rack travel mm : Tolerance mm : Tolerance mm : Tolerance mm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1600 strokes	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : 1100 : 1500	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tack travel mm : rack travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580  → 30
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : 100 : 1500 : 105.0	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tated speed rpm : rack travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : 1100 : 1500	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tack travel mm : rack travel mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580  → 30  100
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity c%3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : AT FULL LOAD STOP : 1100 : 1500 : 105.0 : + 1.0	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tack travel mm : rack travel mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580  → 30
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity c%3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : 100 : 1500 : 105.0	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tack travel mm : rack travel mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580  → 30  100
GUIDE SLEEVE POSIT  control lever position degree Rated speed rpm  Rack travel in mm Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVERY  Rated speed rpm Aneroid pressure hPa Del. quantity c%3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: - 3 : 800 : 0.65 : + 0.35 : 5.00 : AT FULL LOAD STOP : 1100 : 1500 : 105.0 : + 1.0	control lever position degree : tolerance degree : Setting point w/out   Rated speed rpm : rack travel mm : Tolerance mm : Tack travel mm : rack travel mm : Tolerance mm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm : Rated speed rpm :	→ 4.0  bumper spring  300  4.90  → 0.10  300  5.40  → 0.10  2.00  580  → 30  100

		+ Tolerance 	:
TORQUE CONTROL		+ Check tolerance	•
D-A-dd	4400	+ cm3/1000s.	:
ated speed rpm	: 1100	+ Spreed	
ick travel mm	: 12.35	+ Tolerance	
olerance mm	: +- 0.05	+ cm3/1000 strokes	:
	500	+ Check tolerance	
ted speed rpm	: 500	+ cm3/1000s.	:
ck travel mm	: 13.90	†	
erance mm	: +- 0.10	+ Aneroid pressure	
	. 000	+ hPa	:
ed speed rpm	: 820	+ Rated speed rpm	:
travel mm	: 12.80	+ Del. quantity	
erance mm	: +- 0.20		:
	770	+ Tolerance	
ted speed rpm	: 770		:
ck travel mm	: 13.10	+ Check tolerance	
lerance mm	: <b>←</b> 0.10	+ cm3/1000s.	:
		‡	
NEROID/ALTITUDE		STARTING FUEL DELI	_ V
		+	
		+ Rated speed rpm	:
TING		+ rack travel mm	:
		+ Tolerance mm	:
ed speed rpm	: 500	+ Del. quantity	
essure hPa	: 1500	+ cm3/1000 strokes	:
k travel mm	: 13.90	+ Tolerance	•
rance mm	: +- 0.10	+ cm3/1000 strokes	:
	•	+ Check tolerance	•
sure hPa	: -	+ cm3/1000s.	•
d speed rpm	: 500		•
travel mm	: 11.05	1	
rance mm	: <del>+</del> 0.10	+	
ASUREMENT		LOW IDLE	_
	700	+	
ed speed rpm	: 500	+ Rated speed rpm	:
	000	Del. quantity	
sure hPa	: 290	cm3/1000 strokes	•
ck travel mm	: 13.00	+ Tolerance	
erance mm	: <b>←</b> 0.10	+ cm3/1000 strokes	•
4 =	446	+ Check tolerance	
essure hPa	: 120	+ cm3/1000s.	•
k travel mm	: 11.45	+ Spreed	
lerance mm	: <b>←</b> 0.05	+ Tolerance	
		+ cm3/1000 strokes	•
tart interlock		+ Check tolerance	
		± cm3/1000s.	:
		<del></del> <del>-</del>	
JEL DELIVERY CHA	RACTERISTICS	<u> </u>	
eroid pressure		+	
Da	• 1500	+ Fnd of test sperif	i

1500

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 130.0

Check tolerance cm3/1000s. Spread	: +	-	4.0	
Tolerance cm3/1000 strokes Check tolerance	:		5.0	
cm3/1000s.	:		7.0	
Aneroid pressure hPa	:		-	
Rated speed rpm Del. quantity	:	5	00	
cm3/1000 strokes Tolerance	:		77.0	
cm3/1000 strokes Check tolerance	: +-	-	1.0	
cm3/1000s.	: +	-	3.0	
STARTING FUEL DEL	_IVER	Υ		
Rated speed rpm			00	
rack travel mm	:		20.00	
Tolerance mm Del. quantity	: +	un-	1.00	
cm3/1000 strokes	•	1	00.0	
Tolerance	•	'	30.0	
cm3/1000 strokes	: +	***	5.0	
Check tolerance			0.0	
cm3/1000s.	: +	-	8.0	
LOW IDLE				
Rated speed rpm Del. quantity	:	3	00	
cm3/1000 strokes	:		17.0	
Tolerance cm3/1000 strokes	: +	-	2.0	
Check tolerance cm3/1000s.	: +-	_	4.5	
LIIID/ 10003.			•-	
Spreed				
Spreed Tolerance			7.	
Spreed Tolerance cm3/1000 strokes	:		3.5	
Spreed Tolerance	•		3.5 5.5	

+- 1.5

End of test specification sheet

hPa

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 14.01.97 Test oil : ISO 4113

Combination No. : 0 403 476 149

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number : 0 413 406 123

Governor

Governer design. : RSV350...1200MW0A406

Soverner no. : 0 420 085 295

Cust. part No. : 0270741502

Customer-spec. information Customer : MB-NFZ : OM 366 A Motor Power KW : 101.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

40 temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 479 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0 x inside diameter : 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

31.0 Test pressure bar : Tolerance bar : ← 1.0

Prestroke mm 3.75 : +- 0.05 Tolerance mm Check

tolerance mm

: +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

#### BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 10.55 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 89.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0

Spreed

Tolerance	+ rack travel mm	: 9.50
cm3/1000 strokes : 3.5	+ Rated speed rpm	
CMD/ 1000 311 0/CS . 3.3	+ Tolerance 1/min	
Check tolerance	+	
cm3/1000s. : 6.0	+ rack travel mm	: 4.00
	+ Rated speed rpm	: 1005
	+ Tolerance 1/min	: +- 5
Detect aread may a 750	t made through an	4 00
Rated speed rpm : 350	rack travel mm Tolerance mm	: 1.00 : + 0.70
Rack travel in mm: 5.80	Rated speed rpm	
Tolerance mm : + 0.25	+	
Del. quantity	+	
cm3/1000 strokes : 12.0	+	
Tolerance	+	
cm3/1000 strokes : +- 2.0	+ LOW IDLE	
Check tolerance	+	
cm3/1000s. : +- 4.5	† Testing:	
Spreed Tolerance	Rated speed rpm	. 350
cm3/1000 strokes : 3.5	+ rack travel mm	: 5.80
Check tolerance	+ Tolerence ma	· + 0.25
cm3/1000s. : 5.5	+	
	+ rack travel mm	: 2.00
	+ Rated speed rpm	
(B) SETTING OF INJECTION PUMP	† Tolerance 1/min	: <b>←</b> 30
WITH GOVERNOR	+	400
	+ Rated speed rpm	: 100
	T CRT mm min.	: > 19.00
GUIDE SLEEVE POSITION	+	17.00
	+ TORQUE CONTROL	
control lever	<b>†</b>	000
position degree : - 3 Rated speed rpm : 800	+ Rated speed rpm + rack travel mm	
Rated Speed (pm : 000	+ Tolerance mm	: + 0.05
Rack travel in mm : 0.65	T roter arice in	0.05
Tolerance mm : + 0.35		
	+ ANEROID/ALTITUDE	
	+ COMPENSATOR TEST	
FULL LOAD DELIVERY AT FULL LOAD STOP	†	
Dated annual page 4 000	† SETTING	
Rated speed rpm : 880 Aneroid pressure	SETTING	
hPa : 800	Rated speed rpm	: 500
Del. quantity	+ Pressure hPa	: 800
cm3/1000 strokes : 89.0	+ rack travel mm	: 10.55
Tolerance	† Tolerance mm	: <b>←</b> 0.10
cm3/1000 strokes : +- 1.0	+	
Check tolerance	+ Pressure hPa	
cm3/1000s. : +- 3.0	+ Rated speed rpm + rack travel mm	: 500 : 9.30
Spreed Tolerance	+ Tolerance mm	: + 0.10
cm3/1000 strokes : 3.5	- Total dilice like	0.10
Check tolerance	+ MEASUREMENT	
cm3/1000s. : 6.0	+	
	+ Rated speed rpm	: 500
	**************************************	
RATED SPEED	+ Start interlock	

# FUEL DELIVERY CHARACTERISTICS

# Aneroid pressure

hPa 500 Rated speed rpm Del, quentity cm3/1000 strokes : 50.0

Tolerance cm3/1000 strokes : +-1.0

Check tolerance cm3/1000s. 3.0

# STARTING FUEL DELIVERY

Rated speed rpm 100 Del. quantity cm3/1000 strokes : 83.0 Tolerance cm3/1000 strokes :  $\leftarrow$  5.0 Check tolerance cm3/1000s. 8.0

### LOW IDLE

Rated speed rpm 350 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s.5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 16.01.97 Edition : 76.U1.97 : ISO 4113 Test oil

Combination No. : 0 400 845 082

Injection pump

Pump designation : PES5A950410RS2680 EP type number : 0 410 895 972

Governor

Governer design. : RQV300...1150AB1217L

Governer no. : 0 420 212 186

Cust. part No. :

Customer-spec. information

Customer : KHD

: F5L413FFRW Motor

Power KW : 85.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 592 198

Inlet press. bar : 1.5

Test nozzle holde ssembly : 0 681 343 009

Opening pressure

: 173.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Test pressure bar : 26.0 Tolerance bar : + 1.0

: 1.55 Prestroke mm : + 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: : 16.50 Tolerance mm : +- 1.50

Firing order : 1-3-5-4-2

: 0-72-144-216-288 : ← 0.50 Phasing

Tolerance

Check

tolerance \*NW : **←** 0.75

#### BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 8.35 : **←** 0.05 Tolerance mm

Del. quantity cm3/1000 strokes : 73.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +-3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Charle Andreanna	•
Check tolerance cm3/1000s. : 6.0	- FULL LOAD DELIVERY AT FULL LOAD STOP
	- Value don't believe the value of the
	- Rated speed rpm : 1150
Part depart on a 200	- Aneroid pressure
Rated speed rpm : 300	- hPa : - - Del. quantity
Rack travel in mm: 6.50	- cm3/1000 strokes : 73.0
Tolerance mm : + 0.10	- Tolerance
Del. quantity	- cm3/1000 strokes : +- 1.0
cm3/1000 strokes : 15.0	- Check tolerance
Tolerance	- cm3/1000s. : +- 3.0
cm3/1000 strokes : +- 2.0 +- Check tolerance +-	- Spreed - Tolerance
cm3/1000s. : +- 4.5	- c/n3/1900 strokes : 3.5
Spreed	- Check tolerance
Tolerance	- cm3/1000s. : 6.0
cm3/1000 strokes : 3.5	•
Check tolerance cm3/1000s. : 5.5	•
Cm57 (2003:	- CONTROL LEVER
(B) SETTING OF INJECTION PUMP	- control lever
WITH GOVERNOR	position degree : 120.0
1	tolerance degree : +- 4.0
	DATES SOCIES
GUIDE SLEEVE TRAVEL	- RATED SPEED - rack travel mm : 7.30
Dimension a mm : 1.40	- Rated speed rpm : 1195
Rated speed rpm : 1150	- Tolerance 1/min : +- 5
guide steeve	•
travel mm : 8.00	rack travel mm : 4.00
Tolerance mm : + 0.20	- Rated speed rpm : 1245 - Tolerance 1/min : +- 15
Rated speed rpm : 300	
guide sleeve	rack travel mm : 0.50
travel mm : 1.40	Tolerance mm : - 0.50
Toterance mm : + 0.10	- Rated speed rpm : 1350
Rated speed rpm : 500	
guide sleeve	-
travel mm : 3.50	
Tolerance mm : + 0.10	- LOW IDLE
Rated speed rpm : 800	
guide sleeve	- - control lever
travel mm : 5.40	position degree : 69.0
Tolerance mm : + 0.20	tolerance degree : +- 4.0
	Tastina
GUIDE SLEEVE POSITION	- Testing:
00100 000000 1 00111011	- Rated speed rpm : 300
1	rack travel mm : 6.50
control lever	Tolerance mm : + 0.10
position degree : -1 Rated speed rpm : 1200	- Rated speed rpm : 100
rated speed this : 1500	- Nateu speed fpm : 100
Rack travel in mm: 16.50	- CRT mm min. :> 8.00
Tolerance mm : + 1.30	•

TORQUE CONTROL	
Rated speed rpm	: 1150
rack travel mm	: 8.35
Tolerance mm	: +- 0.05
Rated speed rom	: 500 : 9.75
rack travel mm Tolerance mm	: 9.75 : +- 0.05
Rated speed rpm	: 840
rack travel mm	9.40
Tolerance mm	: +- 0.10
Rated speed rpm	
rack travel mm	: 8.70
Tolerance mm	: + 0.10
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm	: < 220
Check	: > 80
speed 1/min Check	: > 00
speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: -
Rated speed rom	: 700
Del. quantity	. 02.0
cm3/1000 strokes Tolerance	: 82.0
cm3/1000 strokes	: <b>←</b> 1.5
Check tolerance	
cm3/1000s.	: <b>←</b> 4.0
Aneroid pressure	• -
hPa Rated speed rpm	100
nated speed rpm Del. quantity	. 100
cm3/1000 strokes	: 67.5
Tolerance	: <del></del> 2.5
cm2/1000 atmakes	6.3
cm3/1000 strokes	
cm3/1000 strokes Check tolerance cm3/1000S.	: ← 5.0

rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 14.50 : + 0.20 : 125.0 : + 5.0 : + 8.0
LOW IDLE	
Rated speed rpm	: 300
Del. quantity cm3/1000 strokes	: 15.0
Tolerance cm3/1000 strokes	: <del>-</del> 2.0
Check tolerance cm3/1000s.	: <del>←</del> 4.5
Spreed Tolerance	
cm3/1000 strokes Check tolerance	: 3.5
cm3/1000s.	: 5.5

End of test specification sheet

Rated speed rpm : 100

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97 Test oil : ISO 4113

Combination No. : F 002 AOZ 048

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...950A0C927R

Governer no. : F 002 A20 235

Cust. part No. : 3283916

Customer—spec. information Customer : CUMMINS

Motor : 6BTA-160/1900

Fower KW : 119.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 500

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : - 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance : +- 0.10

Check

tolerance \*NW : +- 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 119.4

Tolerance cm3/1000 strokes	: <del>+</del> 1.0
Check tolerance cm3/1000s.	; + 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5
Rated speed rpm	: 475
Rack travel in mm	
Tolerance mm Del. quantity	: <b>←</b> 0.10
cm3/1000 strokes	: 23.5
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s.	: <del>+</del> 4.5
Spreed	, 4.5
Tolerance cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR  GUIDE SLEEVE POSIT	
control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm Tolerance mm	: 0.50 : + 0.20
governor spring	
pre-tension click setting x	: 2.00
FULL LOAD DELIVERY	Y AT FULL LOAD STOP
Rated speed rpm	: 950
Aneroid pressure hPa	: 850
Del. quantity cm3/1000 strokes	: 119.4
CIRD/ (UUU STrokes	: 119.4

Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: + 1.0 : + 3.0 : 4.0 : 6.5
CONTROL LEVER	
control lever position degree tolerance degree	: 91.0 : + 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 12.30 : 1000 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1075 : ← 5
rack travel mm Tolerance mm Rated speed spm	: 0.85 : + 0.55 : 1200
rack travel mm Rated speed rpm	: 4.00 : 1075
LOU TOLE	

## LOW IDLE

control lever
position degree : 76.0
tolerance degree : ← 4.0

Control lever difference Grad : 15.0 tolerance degree : +- 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475 rack travel mm : 5.90 Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 950 rack travel mm : 13.30 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 Pressure hPa : 850

Pressure hPa : Rated speed rpm : 500
rack travel mm : 9.90
Tolerance mm : +- 0.10

**MEASUREMENT** 

Rated speed rpm : 500

Pressure hPa : 550 rack travel mm : 12.50 Tolerance mm : + 0.20

Pressure hPa : 350 rack travel mm : 11.45 Tolerance mm : → 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 75.6

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 122.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 475

Del. quantity

cm3/1000 strokes : 23.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.11.96 : ISO 4113 Test oil

combination No. : 0 402 076 756

Injection pump

Pump designation : PES6P100A320LS3317

EP type number : 0 412 006 706

Governor

Governer design. : RSV400...1200P5A587

Governer no. : 0 421 833 446

Cust. part No. : 1820269091

Customer-spec. information Customer : NAVISTAR : DTA-466 Motor Fower KW : 204.0

#### TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : ← 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

Tolerance : **←** 0.30

Check

tolerance \*NW : **←** 0.75

### BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm: 14.65

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 176.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: +- 3.0 cm3/1000s.

Tolerance cm3/1000 strokes : 8.0	Rated speed rpm Tolerance 1/min
Check tolerance : 12.0	rack travel mm Rated speed rpm Tolerance 1/min
Dook Applied to the Control of the C	rack travel mm Tolerance mm
Rack travel in mm : 5.20 Tolerance mm : + 0.10	Rated speed rpm rack travel mm
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm
SUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3	control lever position degree tolerance degree
Rated speed rpm : 800	Testing:
ack travel in mm: 0.50 olerance mm: + 0.20	Rated speed rpm rack travel mm
povernor spring pre-tension plick setting x : 3.50	Tolerance mm Rated speed rpm
	CRT mm min.
FULL LOAD DELIVERY AT FULL LOAD STOP	
Rated speed rpm : 1200 Uneroid pressure	TORQUE CONTROL
Pa : 1500 Pel. quantity	Rated speed rpm rack travel mm
m3/1000 strokes : 176.5 olerance	+ Tolerance mm
m3/1000 strokes : + 1.0 heck tolerance	ANEROID/ALTITUDE
m3/1000s. : + 3.0 preed	+ COMPENSATOR TEST
olerance m3/1000 strokes : 8.0 heck tolerance	SETTING
m3/1000s. : 12.0	Rated speed rpm Pressure hPa rack travel mm
CONTROL LEVER	Tolerance mm
control lever position degree : 55.0	Pressure hPa Rated speed rpm rack travel mm
tolerance degree : +- 4.0	† Tolerance mm
RATED SPEED : 13.60	MEASUREMENT

Rated speed rpm Tolerance 1/min	: 1245 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1315 : + 5
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : + 0.55 : 1400
rack travel mm Rated speed rpm	: 4.00 : 1320
LOW IDLE	
control lever position degree tolerance degree	: 25.0 : + 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 400 : 5.20 : + 0.10
Rated speed rpm	: 100
CRT mm min.	: > 19.00
TORQUE CONTROL	
Rated speed rpm rack travel mm Tolerance mm	: 1200 : 14.65 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1200 : 1500 : 14.65 : +- 0.05
Pressure hPa Rated speed rpm rack travel mm Tolerance mm	: - : 500 : 8.40 : + 0.20
MEASUREMENT	

Rated speed rpm : 1200

: 650 Pressure hFa 13.20 rack travel mm : : + 0.20 Tolerance mm

: 240 Pressure hPa 9.55 + 0.05 rack travel mm : Tolerance mm

Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 72.0 Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000S. : +- 4.0

# STARTING FUEL DELIVERY

: 100 Rated speed rpm rack travel mm : 20.50 Tolerance mm : **←** 0.50

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

: + 25.0 cm3/1000S.

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96 Test oil : ISO 4113

Combination No. : 0 402 076 757

Injection pump

Pump designation : PES6P100A320LS3319 EP type number : 0 412 006 707

Governor

Governer design. : RSV350...1300P5A565

Governer no. : 0 421 833 414

Cust. part No. : 1820268091

Customer—spec. information Customer : NAVISTAR Motor : DT-408 Power KW : 141.5

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity

min. L/h : 260 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

Tolerance  $: \leftarrow 0.30$ 

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.55
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 138.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed	RATED SPEED
Tolerance cm3/1000 strokes : 8.0	rack travel mm : 11.50 Rated speed rpm : 1345 Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : 12.0	rack travel mm : 4.00 Rated speed rpm : 1405 Tolerance 1/min : +- 5
Rack travel in mm : 5.60 Tolerance mm : +- 0.10  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1500  rack travel mm : 4.00 Rated speed rpm : 1410
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 71.0 tolerance degree : +- 6.0 Testing:
Rack travel in mm: 0.50 Tolerance mm: + 0.20  governor spring	Rated speed rpm : 350 rack travel mm : 5.60 Tolerance mm : + 0.10
pre-tension click setting x : 3.75	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.00
Rated speed rpm : 1300	TORQUE CONTROL
hPa : 1200 + Del. quantity + cm3/1000 strokes : 138.5 + Tolerance + tolerance	Rated speed rpm : 1300 rack travel mm : 12.55 Tolerance mm : + 0.05
cm3/1000 strokes : + 1.0 + Check tolerance + 3.0 + Spreed + Tolerance	ANEROID/ALTITUDE COMPENSATOR TEST
cm3/1000 strokes : 8.0 Check tolerance	SETTING
cm3/1000s. : 12.0	Rated speed rpm : 1300 Pressure hPa : 1200 rack travel mm : 12.55 Tolerance mm : + 0.05
control lever position degree : 111.0 tolerance degree : + 6.0	Pressure hPa : - Rated speed rpm : 500 rack travel mm : 8.30 Tolerance mm : + 0.20

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### **MEASUREMENT**

Rated speed rpm : 1300

Pressure hPa : 650 rack travel mm : 11.50 Tolerance mm : + 0.20

Pressure hPa : 290
rack travel mm : 9.25
Toleranse mm : + 0.05

Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 400

Del. quantity

cm3/1000 strokes : 74.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : +- 4.0

# STARTING FUEL DELIVERY

Rated speed rom : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : +- 25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13, 11, 96 Test oil : ISO 4113

Combination No. : 0 402 076 760

Injection pump

Pump designation : PES6P100A320LS3317

EP type number : 0 412 006 706

Governor

Governer design. : RSV415...1100P8A577

: 0 421 833 433 Governer no.

: 1818694091 Cust. part No.

Customer-spec. information Customer : NAVISTAR Motor : DT-531 Power KW : 145.0

#### TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

: 1 417 413 076 Overflow valve

Inlet press. bar : : + 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar 208.5 : <del>+-</del> 1.5 Tolerance bar

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

17.0 Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 3.00 : +- 0.05 Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

Tolerance : +- 0.30

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 138.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +-3.0

Tolerance	+ tolerance degree : +- 6.0
cm3/1000 strokes : 8.0	t coterance degree : + 0.0
	+ RATED SPEED
Check tolerance	+ rack travel mm : 11.40
cm3/1000s. : 12.0	Rated speed rpm : 1150
	Tolerance 1/min : + 5
	+ rack travel mm : 4.00
	Rated speed rpm : 1200
Rack travel in mm: 5.30	+ Tolerance 1/min : + 5
Tolerance mm : ← 0.10	+
	rack travel mm : 0.85
(A) APTELIA AR THIRATTAN MINE	Tolerance mm : + 0.55 Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Rated speed rpm : 1300
MILLI GOAEKIAOK	rack travel mm : 4.00
•	+ Rated speed rpm : 1205
	+
GUIDE SLEEVE POSITION	1
control lever	LOW IDLE
position degree : - 3	I. LOW IDEL
Rated speed rpm : 300	1
The state of the s	+ control lever
Rack travel in mm: 0.50	+ position degree : 71.0
Tolerance mm : + 0.20	tolerance degree : + 6.0
	t control lever
governor spring pre-tension	+ position degree : 21.0
click setting x : 4.50	tolerance degree : +- 4.0
otion octoring a company	+ total and degree
	† Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 415
Rated speed rpm : 1100	+ rack travel mm : 5.30
Aneroid pressure	rack travel mm : 5.30 Tolerance mm : + 0.10
hPa : 1200	1
Del. quantity	+ Rated speed rpm : 100
cm3/1000 strokes : 138.0	+
Tolerance	+ CRT mm min. : > 19.00
cm3/1000 strokes : + 1.0	†
Check tolerance cm3/1000s. : +- 3.0	TOPOUE CONTROL
cm3/1000s. : +- 3.0 Spreed	† TORQUE CONTROL
Tolerance	Rated speed rpm : 1100
cm3/1000 strokes : 8.0	+ rack travel mm : 12.75
Check tolerance	Tolerance mm : + 0.05
cm3/1000s. : 12.0	+
	+ ANEROID/ALTITUDE
CONTROL LEVER	+ COMPENSATOR TEST
CONTROL LEVER	I
control lever	SETTING
position degree : 52.0	+
tolerance degree : +- 4.0	Rated speed rpm : 500
	Pressure hPa : 1200
control lever	+ rack travel mm : 12.75
position degree : 102.0	+ Tolerance mm : + 0.05

Pressure hPa Rated speed rpm : 500 rack travel mm : 8.60 : +- 0.20 Tolerance mm

# MEASUREMENT

Rated speed rpm : 500

Pressure hPa 480 : 11.40 rack travel mm : +- 0.20 Tolerance mm

: 240 • 9.45 • 05 Pressure hPa rack travel mm : +- 0.05 Tolerance mm

### Start interlock

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 76.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s.

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 : **←** 0.50 Tolerance mm Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +- 25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96 Test oil : ISO 4113

Combination No. : 0 402 076 761

Injection pump

Pump designation : PES6P100A320LS3317

EP type number : 0 412 006 706

Governor

Governer design. : RSV415...1100P8A576

Governer no. : 0 421 833 432

Cust. part No. : 1817593091

Customer—spec. information

Customer : NAVISTAR Motor : DT-531 Power KW : 161.0

#### TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

M06

x inside diameter: 3.0 x length mm : 600

#### P.EMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Fhasing : 0-60-120-180-240

Tolerance :  $\leftarrow$  0.30

Check

tolerance \*NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.35 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 151.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Tolerance - cm3/1000 strokes : 8.0 -	tolerance degree : +- 6.0
Check tolerance cm3/1000s : 12.0	RATED SPEED rack travel mm : 12.10 Rated speed rom : 1150 Tolerance 1/min : +- 5
Rack travel in mm: 5.30 - Tolerance mm: +- 0.10 -	rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : +- 5
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1300
WITH GOTENION	rack travel mm : 4.00 Rated speed rpm : 1200
GUIDE SLEEVE POSITION -	
control lever - specified control lever - sp	LOW IDLE
Rack travel in mm: 0.50 - Tolerance mm: + 0.20 -	control lever position degree : 72.0 tolerance degree : +- 6.0
governor spring pre-tension click setting x : 5.00	control lever position degree : 22.0 tolerance degree : + 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing:
Rated speed rpm : 1100 - Aneroid pressure hPa : 1209 -	Rated speed rpm : 415 rack travel mm : 5.30 Tolerance mm : + 0.10
Del. quantity - cm3/1000 strokes : 151.0 -	Rated speed rpm : 100
Tolerance - cm3/1000 strokes : + 1.0 -	CRT mm min. : > 19.00
Check tolerance - cm3/1000s. : +- 3.0 - Spreed	TORQUE CONTROL
Tolerance - cm3/1000 strokes : 8.0 - Check tolerance -	Rated speed rpm : 1100 rack travel mm : 13.35 Tolerance mm : + 0.05
cm3/1000s. : 12.0 -	
CONTROL LEVER -	ANEROID/ALTITUDE COMPENSATOR TEST
control lever	SETTING
tolerance degree : +- 4.0	Rated speed rpm : 1100 Pressure hPa : 1200
control lever position degree : 101.0	rack travel mm : 13.35 Tolerance mm : + 0.05

Pressure hPa : Rated speed rpm : 500
rack travel mm : 8.6 8.60 : +- 0.20 Tolerance mm

#### MEASUREMENT

Rated speed rpm : 1100

540 11.9 Pressure hPa : 11.90 rack travel mm Tolerance mm : **←** 0.20

: 250 Pressure hPa 9.45 rack travel mm : : + 0.05 Tolerance mm

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 500 Rated speed rpm Del. quantity

cm3/1000 strokes : 76.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : **←** 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96 Test oil : 180 4173

Combination No. : 0 402 076 763

Injection pump

Pump designation : PES6P100A320LS3317

EP type number : 0 412 006 706

Governor

Governer design. : RSV415...1100P8A579

Governer no. : 0 421 833 435

Cust. part No. : 1822012091

Customer-spec. information Customer : NAVISTAR Motor : DT-466

Power KW: 134.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION FUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

**BEGINNING OF DELIVERY** 

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00
Tolerance mm : + 0.05
Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm: + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35 Tolerance mm : + 0.05

roterance mm : + 0.05

Del. quantity cm3/1000 strokes : 125.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s : +- 3.0

Tolerance -	tolerance degree : +- 6.0
cm3/1000 strokes : 8.0	† RATED SPEED
Check tolerance -	rack travel mm : 11.20
cm3/1000s. : 12.0 -	Rated speed rpm : 1160
	Tolerance 1/min : + 5
	rack travel mm : 4.00
-	Rated speed rpm : 1195
Rack travel in mm: 5.40 - Tolerance mm : + 0.10 -	Tolerance 1/min : +- 5
Foterance min : +- 0.10	rack travel mm : 0.85
	Tolerance mm : +- 0.55
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1300
WITH GOVERNOR -	† 
•	Rated speed rpm : 1200
GUIDE SLEEVE POSITION	†
GOIDE SPEENE LOSILIAN	Ţ
control lever	LOW IDLE
position degree : -3	LOW IDEE
Rated speed rpm : 800	1
David American Survey 0.50	control lever
Rack travel in mm: 0.50 - Tolerance mm: : + 0.20 -	position degree : 74.0 tolerance degree : +- 6.0
roterarice many	toterance degree
governar_spring -	control lever
pre-tension -	position degree : 24.0
click setting x : 5.00	tolerance degree : +- 4.0
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Poted aread area a 145
Rated speed rpm : 1100	Rated speed rpm : 415 rack travel mm : 5.40
Aneroid pressure	rack travel mm : 5.40 Tolerance mm : + 0.10
hPa : 1200 -	+
Del. quantity - cm3/1000 strokes : 125.5 -	Rated speed rpm : 100
Tolerance	CRT mm min. : > 19.00
cm3/1000 strokes : +- 1.0	
Check tolerance	TODALE CONTROL
cm3/1000s. : + 3.0 - Spreed	+ TORQUE CONTROL
Tolerance	Rated speed rpm : 1100
cm3/1000 strokes : 8.0 -	rack travel mm : 12.35
Check tolerance	Tolerance mm : + 0.05
cm3/1000s. : 12.0	
-	ANEROID/ALTITUDE
	COMPENSATOR TEST
CONTROL LEVER	
control lever	SETTING
position degree : 55.0 -	1
tolerance degree : +- 4.0 -	Rated speed rpm : 1100
control lever	Pressure hPa : 1200 rack travel mm : 12.35
position degree : 105.0	rack travel mm : 12.35 Tolerance mm : +- 0.05
•	•

Pressure hPa : Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : + 0.20

## MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 440 rack travel mm : 11.40 Tolerance mm : + 0.20

Pressure hPa : 240 rack travel mm : 9.75 Tolerance mm : + 0.05

Start interlock

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 81.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : + 25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 11.11.96 Edition : ISO 4113 Test oil

Combination No. : 0 402 076 770

Injection pump

Pump designation : PES6P11CA320LS3318 EP type number : 0 412 016 749

Governor

Governer design. : RSV350...750P4A561

Governor no. : 0 421 833 451

Cust. part No. : 1823837092

Customer-spec. information Customer : NAVISTAR Motor : DT-531 : 224.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C 40 Tolerance \*C : +- 2.0

Cverflow valve : 1 417 413 076

2.8 Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm 3.00 : + 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50 : **←** 1.50 Tolerance mm

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240 Phasing Tolerance

: <del>-</del> 0.30

Check

tolerance \*NW : + 0.50

# BASIC SETTING

Rated speed rpm : 65Ü

Rack travel in mm: 12.55 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 225.5

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

: +-3.0 cm3/1000s.

Tolerance cm3/1000 strokes	: 4.0	Check tolerance cm3/1000s.	: 6.5
Check tolerance cm3/1000s.	; 6.5		
CIRO/ TEOUS.		CONTROL LEVER	
Rated speed rpm	+	control lever position degree tolerance degree	
Rack travel in ram	5.20	DATES ODEES	
Tolerance mm Del. quantity	: + 0.10	RATED SPEED rack travel mm	. 10.20
cm3/1000 strokes	: 35.0 I	Rated speed rpm	
Tolerance	+	Tolerance 1/min	
cm3/1000 strokes	: ← 2.0 · · ·		
Check tolerance	· , , , , , , , , , , , , , , , , , , ,	rack travel mm	
cm3/1000s. Spreed	: + 4.5	Rated speed rpm Tolerance 1/min	
Tolerance	I	rocerance inmin	; <del></del>
cm3/1000 strokes	: 8.0	rack travel mm	
Check tolerance	+	Tolerance mm	
cm3/1000s.	: 12.0	Rated speed rpm	: 900
	Ī	rack travel mm	: 4.00
(B) SETTING OF INJ WITH GOVERNOR	JECTION PUMP	Rated speed rpm	: 805
GUIDE SLEEVE POSIT	TION	LOW IDLE	
control lever position degree Rated speed rpm		control lever position degree tolerance degree	
Rack travel in mm Tolerance mm		Testing:	
Actions and a	†	Rated speed rpm rack travel mm	
governor spring pre-tension	I	Tolerance mm	
click setting x	: 4.00	TOTAL ALICE HIM	
	+	Rated speed rpm	: 100
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	CRT mm min.	: > 19.00
Rated speed rpm	: 650		
Aneroid pressure	†	TORQUE CONTROL	
hPa Del. quantity	· - 1	Rated speed rpm	: 650
cm3/1000 strokes	: 225.5	rack travel mm	
Tolerance	+	Tolerance mm	
cm3/1000 strokes	: + 1.0 +		
Check tolerance	: + 3.0	Start interlock	
cm3/1000s. Spr <del>e</del> ed	1	Start mitertock	
Tolerance	Ţ		
cm3/1000 strokes	: 4.0		
	+		

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/100C strokes : + 20.0

Check tolerance

cm3/1000s. : + 25.0

## LOW IDLE

Rated speed rpm : 340

Del. quantity

cm3/1000 strokes : 35.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13,11,96 Edition Test oil : ISO 4113

Combination No. : 0 402 076 774

Injection pump

Pump designation : PES6P100A320LS3342 EP type number : 0 412 006 710

Governor

Governer design. : RSV415...1100P8A596

Governer no. : 0 421 833 462

Cust. part No. : 1824624091

Customer-spec. information Customer : NAVISTAR Motor : DT-530 Power KW : 187.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C ÷ + 2.0 Tolerance °C

Overflow valve : 1 417 413 076

Inlet press. bar : Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar : +- 1.5 Tolerance bar

Test Lines : 1 680 750 015

Outside diameter : 6.0

x length mm : 600

x inside diameter: 3.0

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant. per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.00 : +- 0.05 Tolerance mm Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: **←** 0.30 Tolerance

Check

tolerance \*NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55 : +- 0.05 Tolerance mm

Del. quantity

109.0 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

N15

Tolerance tm3/1000 strokes : 8.0	Rated speed rpm Tolerance 1/min Check	: 1150 : + 5
Check tolerance cm3/1000s. : 12.0	speed 1/min	: + 10
Rack travel in mm: 5.20	rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	
Tolerance mm : + 0.10 + (B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
+	rack travel mm Rated speed rpm	: 4.00 : 1205
GUIDE SLEEVE POSITION		
control lever position degree : -3 Rated speed rpm : 800	LOW IDLE	
Rack travel in mm: 0.50 Tolerance mm: + 0.20	control lever position degree tolerance degree	
governor spring pre-tension	Testing:	
click setting x : 4.00	Rated speed rpm rack travel mm Tolerance mm	: 5.20
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm	: 100
Rated speed rpm : 1100 Aneroid pressure hPa : 1200	CRT mm min.	: > 19.00
Del. quantity cm3/1000 strokes : 109.0 + Tolerance	TORQUE CONTROL	
cm3/1000 strokes : + 1.0 + Check tolerance cm3/1000s. : + 3.0 +	Rated speed rpm rack travel mm Tolerance mm	: 11.55
Spreed Tolerance cm3/1000 strokes: 8.0 Check tolerance cm3/1000s. : 12.0	Rated speed rpm rack travel mm Tolerance mm	
CIID/ 10003.	ANEROID/ALTITUDE COMPENSATOR TEST	
CONTROL LEVER	COMPENSATOR TEST	
control lever position degree : 105.0	SETTING	
tolerance degree : + 6.0	Rated speed rpm Pressure hPa	: 800 : 1200
RATED SPEED + rack travel mm : 10.50 +	rack travel mm Tolerance mm	: 12.50 : + 0.20

#### MEASUREMENT

Rated speed rpm : 800

Pressure hPa : 445
rack travel mm : 11.40
Tolerance mm : + 0.20

Pressure hPa : 230 rack travel mm : 9.50 Tolerance mm : + 0.05

Start interlock

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPe : 1200 Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 138.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 77.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.0

# STARTING FUEL DELIVERY

Rated speed rom : 100 rack travel mm : 21.00 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 153.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. :  $\leftarrow$  25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.11.96 Edition Test oil

Combination No. : 0 402 076 775

Injection pump

Pump designation : PES6P100A320LS3342 EP type number : 0 412 006 710

Governor

Governer design. : RSV415...1100P8A597

Governer no. : 0 421 833 463

Cust. part No. : 1824626C91

Customer-spec. information Customer : NAVISTAR : DT-530 Motor Power KW : 153.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 : +- 2.0 Tolerance °C

Overflow valve : 1 417 413 076

Inlet press. bar : Inlet press. bar : 2.8 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm 3.00 : +- 0.05 Tolerance mm Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240Tolerance : +- 0.30

Check

tolerance \*NW : +- 0.75

#### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 104.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s. : +- 3.0

Tolerance cm3/1000 strokes	: 8.0	Rated speed rpm Tolerance 1/min Check	: +- 5
Check tolerance cm3/1000s.	: 12.0	speed 1/min	: +- 10
Rack travel in mm	• 5 60	rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	: 4.00 : 1200 : + 5 : + 10
Tolerance mm		rack travel mm	: 0.85
(B) SETTING OF IN	JECTION PUMP	Tolerance mm Rated speed rpm	: <b>←</b> 0.55
		rack travel mm Rated speed rpm	: 4.00 : 1205
GUIDE SLEEVE POSI	TION	+	
control lever position degree Rated speed rpm		LOW IDLE	
Rack travel in mm Tolerance mm		control lever position degree tolerance degree	
governor spring pre-tension		Testing:	
click setting x		Rated speed rpm rack travel mm Tolerance mm	: 415 : 5.60 : + 0.10
	Y AT FULL LOAD STOP	Rated speed rpm	: 100
Rated speed rpm Aneroid pressure hPa	: 1100 : 1200	CRT mm min.	: > 19.00
Del. quantity cm3/1000 strokes Tolerance	: 104.5	TORQUE CONTROL	
cm3/1000 strokes Check tolerance cm3/1000s. Spreed		Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.55 : ← 0.05
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.		Rated speed rpm rack travel mm Tolerance mm	: 12.50
		ANEROID/ALTITUDE COMPENSATOR TEST	
CONTROL LEVER		‡	
control lever position degree tolerance degree		SETTING  Rated speed rpm Pressure hPa	: 800
RATED SPEED rack travel mm	: 10.50	rack travel mm Tolerance mm	: 12.55

#### **MEASUREMENT**

Rated speed rpm : 800

Pressure hPa : 435 rack travel mm : 11.60 Tolerance mm : +- 0.20

Pressure hPa : 250 rack travel mm : 10.05 Tolerance mm : + 0.05

Start interlock

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 131.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.0

Aneroid pressure

hPa : -Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 78.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : +- 20.0

Check tolerance

cm3/1000s. : +25.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 22,10.96 Test oil : ISO 4113

Combination No. : 0 402 736 866

Injection pump

Pump designation : PES6P12OA12ORS7349 EP type number : 0 412 726 920

Governor

Governer design. : RQV400...1250PA1171K

Governer no. : 0 421 815 437

Cust. part No. : 3928149

Customer-spec. information Customer : CDC

Motor

: 6BTA-A

Power KW

: 156.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 12.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240 Tolerance : + 0.30

Check

tolerance \*NW

: +- 0.75

# Start of delivery blocking

\*NW after s.o.d. : 6.00 Tolerance : + 0.50

Check

tolerance \*NW

: +- 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 13.95

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 177.0  Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000S. : + 4.0 Spreed Tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. : 12.0
Spreed	
Tolerance cm3/1000 strokes : 8.0	CONTROL LEVER
Check tolerance cm3/1000s. : 12.0	<pre>control lever position degree : 120.0 tolerance degree : + 6.0</pre>
Rated speed rpm : 420	RATED SPEED rack travel mm : 12.90 Rated speed rpm : 1320
Rack travel in mm: 5.60 Tolerance mm: + 0.20 Del. quantity cm3/1000 strokes: 18.0	Tolerance 1/min : + 15 Check speed 1/min : + 20
cm3/1000 strokes : 18.0 + Tolerance cm3/1000 strokes : + 3.0 + Check tolerance + tolerance	rack travel mm : 4.00 Rated speed rpm : 1475 Tolerance 1/min : + 5
cm3/1000S. : + 5.0 Spreed Tolerance	Check speed 1/min : + 10
cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 8.0	rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1550
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	A AMA TAN E
‡	LOW IDLE
GUIDE SLEEVE POSITION	<pre>control lever position degree : 72.0 tolerance degree : + 6.0</pre>
control lever position degree : -1 Rated speed rpm : 1410	Control lever difference Grad : 48.0 tolerance degree : + 6.0
Rack travel in mm: 13.00 + Colerance mm: + 2.00	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250	Rated speed rpm : 420 rack travel mm : 5.60 Tolerance mm : +- 0.20
Aneroid pressure hPa : 1200	Rated speed rpm : 300
Del. quantity cm3/1000 strokes : 177.0	CR7 mm min. : > 8.90
VIII	Rated speed rpm : 420

# TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 13.95 Tolerance mm : +- 0.05 Rated speed rpm : : 800 : 12.00 : + 0.10 rack travel mm : Tolerance mm Rated speed rpm : 500 mack travel mm : 10.90 Tolerance mm : +- 0.20 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1250 : 1200 Pressure hPa Pressure hPa 1250 Rated speed rpm : rack travel mm 9.70 : +- 0.20 Tolerance mm **MEASUREMENT** Rated speed rpm : 1250 585 Pressure hPa : 12.90 rack travel mm : : **←** 0.30 Tolerance mm 305 Pressure hPa 10.95 rack travel mm : : + 0.20 Tolerance mm Start interlock Rated speed rpm : > 100 Rated speed rpm : < 315 Check speed 1/min 80 : > Check speed 1/min : < 325

FUEL DELIVERY CHARACTERISTICS

1200

800

Aneroid pressure

Rated speed rpm :

Del. quantity cm3/1000 strokes	: 132.0
Tolerance	. (32.0
cm3/1000 strokes	: <del>+-</del> 3.0
Check tolerance	
cm3/1000s.	: <del>+</del> 6.0
Spreed Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 0.0
cm3/1000s.	: 12.0
Amonaid massaums	
Aneroid pressure has	: -
Rated speed rpm	1250
Del. quantity	
cm3/1000 strokes	: 95.0
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance	: 6.0
cm3/1000s.	: + 4.0
STARTING FUEL DEL	IVERY
Data dament and	. 400
Rated speed rpm rack travel mm	: 100 : 12.50
Tolerance mm	: + 0.50
Del. quantity	0.50
cm3/1000 strokes	: 155.0
Tolerance	
cm3/1000 strokes	: <b>←</b> 20.0
Check tolerance cm3/1000s.	: <b>←</b> 25.0
LOW IDLE	
Rated speed rpm	: 420
Del. quantity cm3/1000 strokes	: 18.0
Tolerance	: 18.0
cm3/1000 strokes	: <del>+</del> 3.0
Check tolerance	
cm3/1000s.	: <del></del>
Spreed Tolonoo	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance	• 4.0
cm3/1000s.	: 8.0
-	

End of test specification sheet

hPa

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 22.01.97 : ISO 4113

Combination No. : 0 402 746 646

Injection pump

Pump designation : PES6P120A320RS7363

EP type number : 0 412 726 931

Governor

Governer design. : RQV325...1000FA1203K

Governer no.

: 0 421 815 458

Cust. part No. : 313GC5216-P4

Customer-spec. information

Customer

: MACK

Motor

: EM5-290

Power KW

: 217.5

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 084

Inlet press. bar :

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

N24

208.5

Tolerance bar

: **←** 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

2.0

500

Set equal delivery quant.

x inside diameter :

x length mm :

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0

Tolerance bar : +- 1.0

Prestroke mm : +- 0.05

Tolerance mm Check

tolerance mm : + 0.10

Rack travel in mm : 12.00

Tolerance mm : + 1.00

firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

Tolerance : +- 0.30

Check

tolerance \*NW : + 0.75

Start of delivery blocking

: +- 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Barrel no.

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 14.05

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 291.0

Tolerance cm3/1000 strokes	: ← 1.0
Check tolerance	
cm3/1000s.	<b>:</b> + 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 325
Rack travel in mm	: 4,60
Tolerance mm	: 4.60 : +- 0.10
Del. quantity	: - 0.10
cm3/1000 strokes	: 47.0
Tolerance	. 47.0
cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance cm3/1000s.	: <del>+-</del> 5.0
Spreed	. — 5.0
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 0.0
cm3/1000s.	: 12.0
(B) SETTING OF INWITH GOVERNOR	
GUIDE SLEEVE TRAV	EL
Rated speed rpm guide sleeve	: 1056
travel mm	: 9.06
travel mm Tolerance mm	: 9.06 : + 0.25
Tolerance mm  Rated speed rpm guide sleeve	: + 0.25 : 325
Tolerance mm  Rated speed rpm guide sleeve travel mm	: + 0.25 : 325 : 1.53
Tolerance mm  Rated speed rpm guide sleeve	: + 0.25 : 325
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm	: + 0.25 : 325 : 1.53
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve	: + 0.25 : 325 : 1.53 : + 0.25 : 898
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm	: + 0.25 : 325 : 1.53 : + 0.25
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm Rated speed rpm	: + 0.25 : 325 : 1.53 : + 0.25 : 898 : 7.74
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: + 0.25 : 325 : 1.53 : + 0.25 : 898 : 7.74 : + 0.25 : 371
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 325 : 1.53 : + 0.25 : 898 : 7.74 : + 0.25 : 371 : 2.23
Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: + 0.25 : 325 : 1.53 : + 0.25 : 898 : 7.74 : + 0.25 : 371
Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 325 : 1.53 : + 0.25 : 898 : 7.74 : + 0.25 : 371 : 2.23

guide sleeve travel mm : 2.85 Tolerance mm : + 0.25  Rated speed rpm : 610 guide sleeve travel mm : 4.40 Tolerance mm : + 0.25  Rated speed rpm : 1440 guide sleeve travel mm : 13.50 Tolerance mm : + 0.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s : + 4.0 Spreed Tolerance cm3/1000s strokes : 5.0 Check tolerance cm3/1000s : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1300		
guide sleeve travel mm : 4.40 Tolerance mm : + 0.25  Rated speed rpm : 1440 guide sleeve travel mm : 13.50 Tolerance mm : + 0.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 12C0 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000s strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000s strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50	travel mm	: 2.85 : + 0.25
travel mm : 4.40 Tolerance mm : + 0.25  Rated speed rpm : 1440 guide sleeve travel mm : 13.50 Tolerance mm : + 0.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000s. : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50		: 610
guide steeve travel mm : 13.50 Tolerance mm : + 0.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : 0.50 Tolerance mm : + 0.50	travel mm	: 4.40 : + 0.25
travel mm : 13.50 Tolerance mm : + 0.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1000 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50		: 1440
Rated speed rpm : 1000 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance 1/min : + 0.50 Tolerance mm : 0.50 Tolerance mm : 0.50 Tolerance mm : + 0.50	travel mm	
Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : 0.50 Tolerance mm : 0.50 Tolerance mm : 0.50	FULL LOAD DELIVER	Y AT FULL LOAD STOP
hPa : 1200  Del. quantity cm3/1000 strokes : 291.0  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 4.0  Spreed  Tolerance cm3/1000 strokes : 5.0  Check tolerance cm3/1000 strokes : 9.0  CONTROL LEVER  control lever position degree : 117.0  tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050  Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance 1/min : + 0.50 Tolerance mm : - 0.50		: 1000
Tolerance cm3/1000 strokes : 291.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : - 0.50 Tolerance mm : + 0.50	hPa	: 1200
Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance 1/min : + 0.50 Tolerance mm : + 0.50	cm3/1000 strokes	: 291.0
cm3/1000s. : + 4.0  Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance 1/min : + 0.50 Tolerance mm : + 0.50	cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.: 9.0  CONTROL LEVER  CONTROL LEVER  Control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50	cm3/1000s.	: +- 4.0
cm3/1000S. : 9.0  CONTROL LEVER  control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : 0.50 Tolerance mm : + 0.50	cm3/1000 strokes	: 5.0
control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50		: 9.0
control lever position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : 0.50 Tolerance mm : + 0.50	CONTROL LEVER	
position degree : 117.0 tolerance degree : + 6.0  RATED SPEED rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50		
rack travel mm : 13.00 Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50	position degree	
Rated speed rpm : 1050 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50		• 13.00
Rated speed rpm : 1215 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50	Rated speed rpm	: 1050
Tolerance 1/min : + 15  rack travel mm : 0.50  Tolerance mm : + 0.50		
Tolerance mm : + 0.50		
	Tolerance mm	: +- 0.50

LOW IDLE

control lever position degree tolerance degree	: 65.0 : ← 6.0
Testing:	
Rated speed rpm	: 325
rack travel mm	: 4.60
Tolerance mm	: <b>←</b> 0.10
Rated speed rpm	: 275
CRT mm min.	: > 5.50
Rated speed rpm	: 425
TORQUE CONTROL	
Rated speed rpm	: 1000
rack travel mm	: 14.05
Tolerance mm	: <del>+-</del> 0.05
Raced speed rpm	: 575
rack travel mm	: 575 : 14.30 : ← 0.10
Tolerance mm	: - 0.10
Rated speed rpm	
rask travel mm Tolerance mm	: 15.00 : + 0.10
roterance mm	; 0.10
Rated speed rpm	
rack travel mm Tolerance mm	: 13.60 : +- 0.40
rocerance min	0.40
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 750
Pressure hPa	: 1200
Pressure hPa	: -
Rated speed rpm	: - : 750 : 8.30 : +- 0.05
rack travel mm Tolerance mm	: 8.30 : +- 0.05
MEASUREMENT	
Rated speed rpm	: 750
Pressure hPa	: 890
rack travel mm Tolerance mm	: 13.45 : +- 0.20
ioterance mm	; - 0.20
Pressure hPa	: 455

rack travel mm Tolerance mm	: 10.05 : + 0.10		
Start interlock			
Rated speed rpm Rated speed rpm	: > 100 : < 270		
Check speed 1/min Check	: > 80		
speed 1/min	: < 275		
FUEL DELIVERY CHA	RACTERISTICS		
Aneroid pressure hPa Rated speed rpm	: 1200 : 575		
Del. quantity cm3/1000 strokes	: 356.0		
Tolerance cm3/1000 strokes	: + 3.0		
Check tolerance cm3/1000s. Spreed	: + 6.0		
Tolerance cm3/1000 strokes	: 8.0		
Check tolerance cm3/1090s.	: 12.0		
Aneroid pressure	: -		
Rated speed rpm Del. quantity	: 750		
cm3/1000 strokes Tolerance	: 155.0		
cm3/1000 strokes Check tolerance	: ← 2.0		
cm3/1000s.	: + 4.0		
STARTING FUEL DEL			
Rated speed rpm rack travel mm Tolerance mm Del. quantity	: 100 : 10.80 : + 1.00		
cm3/1000 strokes Tolerance	: 197.0		
cm3/1000 strokes Check tolerance	: +- 20.0		
cm3/1000s.	: <del>+</del> 30.0		
LOW IDLE			

N26

:	325
:	47.0
: +-	3.0
: +-	5.0
•	3.0
:	8.0
:	12.0
	: +-: : : : : : : : : : : : : : : : : :